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THE
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ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

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CONTENTS.

PAGE

I.	On Human Remains, discovered by General Pitt-Rivers at Woodcuts, Rotherley, &c. By JOHN BRIDDER, M.D., F.R.S., <i>President</i>	2
II.	A Demonstration of Centres of Ideation in the Brain from Observation and Experiment. By BERNARD HOLLANDER	12
III.	On Instruments for (1) Testing Perception of Differences of Tint, and for (2) Determining Reaction-time. By FRANCIS GALTON, F.R.S., <i>Vice-President</i>	24
	The Early Races of Western Asia. By Major C. R. CONDER, R.E.	30
	On an Artificially-deformed Skull from Mallicollo. By Professor FLOWER, C.B., F.R.S., <i>Vice-President</i>	52
	Note on the use of "Elk" teeth for Money in North America. By HENRY BALFOUR, M.A., F.Z.S.	54
	Notes on the Modern Survival of Ancient Amulets against the Evil Eye. By E. B. TYLOR, D.C.L., F.R.S., <i>Vice-President</i>	54
	Antiquities from Huasco (Quasco), Chili. By C. H. READ,	67
	On Megalithic Remains from Japan. By W. GOWLAND, F.C.S.	64
	On Rude Stone Monuments in the Country of the Carnutes (Department Eure et Loire, France). By A. L. LEWIS, F.C.A., <i>Treasurer</i>	66
	On the Comparative Anthropometry of English Jews. By JOSEPH JACOBS and ISIDORE SPIELMAN	76
IV.	The Maoris of New Zealand. By EDWARD TEEGHEAR	97
	On the Osteology of the Veddahs of Ceylon. By ARTHUR THOMSON, M.A., M.B.	125
V.	Notes on the Yoruba Country. By Mrs. BRAITHWAITE BATTY	160

Notes on the Hyksos or Shepherd King

Rev. HENRY GEORGE TOMKINS

The Right of Property in Trees on the Land

Ancient Institution. By HYNK CLARK

Soc., *Vice-President*

II. On Cross-bows, Long-bows, Quivers, &c., from the
Country. By His Excellency Sir ALFRED MOUL
K.C.M.G.

XIX. On Poisoned Arrows in Melanesia. By the Rev.
CODRINGTON, D.D.

On the Structure and Affinities of the Composite Bo

HENRY BAUFORD, M.A., F.Z.S.

Observations on the Natural Colour of the Skin in

Oriental Races. By JOHN BARNES, M.D., F.R.S., Pres

anners, Customs, Superstitions, and Religions of

African Tribes. By the Rev. JAMES MACDONALD

Ethnography of the Western Tribe of Torres Straits

Professor ALFRED C. HADDON, M.A.

Fire-making in North Borneo. By S. B. J.

M.A.

On a Safe Conclusion concerning the Origin of the

which can be drawn from the Designation of Certain

in their Language. By Dr. H. RINK

the Natives of Mowat, Daudai, New

EDWARD BRAEDMORE..

used at the Anniversary Meeting of the

of Great Britain and Ireland, January

BARNES, M.D., F.R.S., *President*

LOGIC & MISCELLANEA

Col. WALTER M. T. CAMPBELL	
the Dieri Tribe. By Mr. A. W. HOWITT	
ers in Tamuli in Finistère. By A. L. LEWIS	
gress of Prehistoric Anthropology and Archaeology	
for the Advancement of Science	
ation	
By T. V. HOLMES	251
By Col. R. G. WOODTHORPE	252
aments. By C. H. READ	441
thropological Lectures	441
By C. M. PLEYTE	494
Ulia. By SIDNEY RAY	500
the Loyalty Islanders. Communicated by Rev.	
L.L.D.	503
in Australian Marriage Systems. By A. J. VOGAN	505
Discovery in Finistère. By Admiral TREMLETT	507
and its Anthropologic Work. By T.	509
By Dr. MAURICE DAVIS	515

ILLUSTRATIONS.

PLATES.

the Early Races of Asia Minor	43
from Peña Blanca, Huasco, Chili	62
representation of the Results of Messrs. Jacobs and	
measurements of English Jews compared with	
Salton's measurements at the Health Exhibition	86
ture of the Composite Bow	245
arks on Natives of Torres Straits	
ong Platform, Head Dress, &c., Torres Straits	
Release, New Guinea; Native of Murulug, Torres	442
ts, &c.	
Map of Torres Straits and Daudai	
ing Apparatus from North Borneo	445



THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
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GREAT BRITAIN AND IRELAND.

FEBRUARY 12TH, 1889.

JOHN BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From Dr. O. FINSCH.—*Ethnologische Erfahrungen und Belegstücke aus der Südsee. Zweite Abtheilung; Neu-Guinea.*
- From the AUTHOR.—*The Ta Ki, the Svastika and the Cross in America.* By Daniel G. Brinton, M.D.
- *Notes on the History, Customs, and Beliefs of the Missisaguas.* By A. F. Chamberlain, B.A.
- *Huron Folk-Lore.* By Horatio Hale.
- *Verkehr und Handel in ihren Uranfängen.* Von Prof. Dr. Ed. Petri.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—*The Scottish Geographical Magazine.* Vol. v. No. 2.
- From the ANTHROPOLOGICAL SOCIETY OF WASHINGTON.—*The American Anthropologist.* Vol. ii. No. 1.
- From the BERLIN GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—*Zeitschrift für Ethnologie.* 1888. Heft 5.

- From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE. Correspondenz-Blatt. 1888. Nr. 10-12.
 From the IMPERIAL UNIVERSITY OF JAPAN.—The Calendar for the year 1888-89.
 — The Journal of the College of Science. Vol. ii. Part 4.
 From the SOCIÉTÉ ARCHÉOLOGIQUE, AGRAM.—Viestnik hrvatskoga Arkeologickoga Društva. Godina x. Br. 1.
 From the TRUSTEES.—Twenty-second Report of the Trustees of the Peabody Museum of American Archæology and Ethnology.
 From the SOCIETY.—Proceedings of the Royal Society. Nos. 273, 274.
 — Proceedings of the Royal Geographical Society. Vol. xi. No. 2.
 — Proceedings of the Society of Biblical Archæology. Vol. xi. Parts 2, 3.
 — Journal of the Anthropological Society of Bombay. Vol. i. No. 5.
 — Journal of the Society of Arts. Nos. 1886-1890.
 From the EDITOR.—Nature. Nos. 1002-1006.
 — American Journal of Psychology. Vol. ii. No. 1.
 — Science. No. 309-312.
 — Photographic Times. No. 380.
 — Revue d'Anthropologie. 1889. No. 1.
 — Revue d'Ethnographie. Tom. vii. No. 4.
 — Revue Scientifique. Tom. xliii. Nos. 1-6.

The PRESIDENT, after some introductory remarks, read the following paper:—

On HUMAN REMAINS, discovered by GENERAL PITT RIVERS at WOODCUTS, ROTHERLEY, &c.

By JOHN BEDDOE, M.D., F.R.S., President.

THE three series of bones, on which the kindness of General Pitt Rivers has enabled me to comment, are of great interest as exhibiting beyond reasonable doubt, examples of two races of men which have successively occupied the same limited district, and almost the same spot. We are entitled, I think, to assume that the two series from the villages of Woodcuts and Rotherley represent a British population living under Roman rule, and the series from [redacted] graves a West-Saxon population belonging to the period of the conquest of Wiltshire, which may of [redacted] mixed its blood with that of the prior [redacted] subjects may have descended from Belgic colonies; the frontier of the Durotriges is in further to the south.

The averages of the three series yield the following results:—

The Woodcuts skulls are the largest in circumference and breadth, the Rotherley series the smallest, the Saxons from Winklebury come between the two. In length, the Woodcuts average and that of the Saxons is about the same (188 millimeters); that of Rotherley is smaller. In height the difference is only 1 millimeter, the Saxons standing first (135), both the British series lower, and equal. As to cephalic index, if we lump together the two series of Britons, we may say that both races fall just within the boundary of dolichocephaly, as now defined, though the Woodcuts average taken separately just exceeds it, being 75.6, while that of Rotherley is but 73.7. The Saxon average, 74.7, is practically identical with that of other early Saxon or Anglian collections. The Saxons are on the whole more prognathous, *i.e.*, they have a rather larger alveolar index. The nasal index is smaller, the orbital index larger, in the Romano-Britons.

Of radii and arcs, the vertical and parietal are slightly larger in the Britons, the frontal distinctly larger in the Saxon men. The greater length of the frontal arc, and the comparative shortness of the parietal arc in the Saxons seem partly due to the greater fulness of the temporal region as compared with the posterior parietal which again is connected with the greater tendency to ellipticity in the norma verticalis.

The following table exhibits, roughly, the relative proportions of the radii and arcs, the measurements of the vertex being taken as the standard.

	Frontal.		Vertical.		Parietal.	
	Radii.	Arcs.	Radii.	Arcs.	Radii.	Arcs.
Saxons	90	91	100	100	103	102
Romano-Britons	86	87	100	100	102	104
Round-barrow ..	90	90	100	100	92	102
Rotherley ..	86	87	100	100	104	104

There are also sundry points of difference which, though they do not distinctly come out in the measurements, and though some of them are incapable of being tested in that way, are nevertheless appreciable and important.

Among these are the greater prominence of the superciliary ridges, as a rule, in the Romano-Britons. The difference

between the glabello-maximal and the ophryo-maximal lengths does not always fully express this prominence, being liable to vary also with the form of the occiput.

The chin is usually broader, rounder or more open in the Saxons.

Though the orbital index is greater on the average in the Romano-Britons, the orbit is generally rounder or less angular and square in the Saxons.

The form of the nose, perhaps I should say the probable form, has been noted in four of the Woodcuts, and six of the Rotherley series, and in four of the Saxons.

In three, and perhaps in four, of those from Woodcuts, it has been prominent and seemingly aquiline; in the whole of the six from Rotherley more or less aquiline; among the Saxons one is marked prominent, one slightly arched, one straight, and one "not arched." These observations confirm, so far as they go, the other evidence we have as to the form of the nose among the Anglo-Saxons¹. It was sometimes concave, often straight, often slightly convex, without being very prominent in the face or forming a large angle with the plane of the forehead.

Some parieto-occipital or rather post-parietal flattening is noted in eight of the Saxons, but in only two of the Britons from Woodcuts, and three from Rotherley. This is a frequent feature in long Germanic skulls. On the other hand the off-setting (*Absätzung*) of the occiput, which German and Swiss anthropologists ascribe to their *Reihengräber* or *Hohberg* type, is little seen in these Winklebury Saxons. I have noted it in but one instance, No. 31²; whereas it is noted as considerable in two, and slighter in three others of the Woodcuts Britons, and as marked in one, and existing in two others of the Rotherley series. This point may be worth dwelling on a little.

Johannes Ranke treats the *Hohberg-Reihengräber* form, the leptoprosopic dolichocephalic of Kollmann, and the Kymric of the French anthropologists, as one and the same. In that case, this feature might be supposed to have been brought into Dorset and Wilts by Belgic invaders. But there is some evidence in the "*Crania Britannica*" of its occurrence hereabout earlier than the Belgic immigration. I lay no stress on the skull from Morgan's Hill, figured therein, which exhibits this "off-setting" in a notable degree; though only a flint implement was found with it Dr. Thurnam himself thought it Belgic. But there is a slight degree of this peculiarity in the long-barrow skulls of West Kennet and Uley, and a greater one in the Parsley Hay and Ballidon Moor crania, which are brachycephalous probably

¹ See especially Mr. Park Harrison's paper on this subject.

of early date. Professor Macalister notes its occurrence in the Worlebury skulls. It is perceptible also in some of the skulls of the period we are dealing with, which are figured by Barnard Davis as Roman, but whose ethnic character is more or less doubtful.

On the other hand it is not a conspicuous feature in Davis's Saxon skulls, of which those from Ozingell and Wye (both in Kent) exhibit most of it. Of the five skulls figured by Virchow (in his "*Beiträge zur phys. Anthr. der Deutschen*") from the Frisian islanders of the Zuyder Zee, only one, that of a male from Schokland, shows any sign of it. It occurs in some only of the long skulls figured by Gildemeister from Bremen, and in none of the broader ones which he calls Frisian or Batavian.

On the whole, if it was really a race-feature, it must have characterised the military caste among the Belgic as well as among the Germanic conquerers. Admixture of the Frisian type may have lessened its prevalence among the Saxons of Wessex.

In the *norma verticalis*, there is as usual a somewhat greater tendency to the elliptic outline in the Saxon, and to the ovoid or even the coffin or pear shape in the British skulls. Thus in 15 of the Winkelbury, 12 of the Woodcuts, and 14 of the Rotherley Britons we have the following proportions:—

	Saxon.	Romano-British.	Ditto Rotherley.
Elliptic	6	4	4
Ovo-elliptic. . .	4	..	..
Ovoid	4	6	3
Pear-shaped .. ..	..	1	7 { pear-shaped. coffin-shaped. heart-shaped.
Oblong-ovate ..	1	1	

The oblong-ovate form is the Sarmatic of Van Hölder; the heart-shaped approaches his Turanian type.

In both series the crowns of the teeth are more or less abraded by the use of hard food; but while those of the Saxons are wholly free from caries, it is found in those of no less than five of the Britons of Woodcuts.

Another remarkable difference is found in the stature.

General Pitt Rivers, following rules laid down by Topinard, and taking into account the lengths not only of the femur but of the tibia and of the bones of the upper extremities, arrives at the following conclusions as to this point:—

	Britons.		Saxons.
	Woodcuts.	Rotherley.	Winklebury.
Males	ins. (7) 5 f. 4	ins. (11) 5 f. 1·3	ins. (12) 5 f. 7·3
Females	(6) 4 f. 11·8	(3) 4 f. 10·	(9) 5 f. 1·4

These differences are very great; they extend to both the British villages, and to both sexes. The inferiority of the British to the Saxon males is in the one case 3·3 inches, in the other no less than 6 inches; that of the British to the Saxon females in the one case 1·6 inches, in the other 3·4 inches. It arises, not from any remarkable development in the Saxons, but from a remarkable depression in the Britons. Yet the two earlier races, contributories to the British stock, were, the one, the bronze men, tall and stalwart, and the other, the neolithic men of the long barrows, not, as a rule, particularly small. And Strabo was struck by the procerity of the British youths whom he had seen, and says distinctly that the Britons were taller than the Gauls. Of course there remains the consideration, not to be altogether overlooked, that our Woodcuts and Rotherley peasants may have descended in part from earlier races of serfs, of small stature, of whom we have few relics. Allowing that possibility, I would call attention to the occurrence of skulls among our present material which remind us distinctly of the neolithic race, and of some which may suggest the admixture of the bronze blood.

For myself, I am inclined to doubt whether these Britons, though certainly of stature so short as to constitute a notable and pregnant anthropological fact, were quite so short as General Pitt Rivers, on Topinard's rules, has made them out to be. My distinguished friend Topinard has recently criticised my view somewhat unfavourably in the "*Revue d'Anthropologie*"; but I still think that his own observations, coupled with those of Orfila, indicate a notable shortening of the lower limbs, as compared with the trunk, in individuals who are of shorter stature than the standard of their race. To go back to a very old authority, Homer, in describing Ulysses, says that he was of short stature, but that when he was seated among others this was not observable.

Now it is easier to suppose that the inhabitants of Woodcuts and Rotherley were of short stature by reason of degeneration or selection than that they were a small race *ab initio*, so to speak, in which latter case my argument would fail.

I think, therefore, that calculations based on the length of the femur alone, or of the femur and tibia, in which the relative proportions of these bones in short-statured people are not allowed for, may give results somewhat under the mark. This source of deficiency is partially, however, avoided by General Pitt Rivers, in that he has taken into account also the lengths of the bones of the upper extremity. Still, the objection is not entirely removed.

Another possible source of fallacy lies in the fact that several individuals of both sexes, and in both the Romano-British villages, appear to have been of advanced age, and are noted as being so by Dr. Garson. Such persons may have lost a little of the height which they possessed in the flower of adult age. I believe, however, that the decline in stature which takes place in old people is not usually accompanied by any material shortening of the long bones; the neck of the femur may, it is true, become more horizontal, and thus lessen the apparent length of that bone.

Anyhow, the calculated stature is not increased, in the case of the Woodcuts people, by the subtraction of the aged males, while in the case of the Winklebury Saxons it is positively lessened, the three old men among them having averaged, according to General Pitt Rivers, 5 feet 7½ inches, while my plan brings them up to 5 feet 8¾ inches.

At Rotherley, however, the aged men have been really shorter than the others. Let us subtract them, and regard only the six men who were in the prime of life. Their average, as calculated by General Pitt Rivers on Topinard's plan, is only 5 feet 2½ inches.¹ Out of all the numerous schedules contained in my own work on the Stature and Bulk of Man in the British Isles, only one, a collection of Spitalfield weavers, an originally small race dwarfed by progressive degeneration, yielded figures lower than these.

The utmost point to which I can raise the stature of these people, by eliminating the older men, and employing the mode of calculation which is most favourable to them, that from the femur alone, is 5 feet 5·9 inches in the case of Woodcuts, and 5 feet 4·2 inches, in that of Rotherley. This last figure would still be below that of any modern community in Great Britain.

The nine male Saxons, as I have already stated, must have averaged somewhere between 5 feet 7 inches and 5 feet 8 inches.

Here there is no possible room for doubt; all methods of calculation lead to nearly the same result; and this result

¹ I am not sure whether the soft parts have been allowed for: if not, an inch and four-tenths should be added.

agrees very closely with that I have arrived at from a consideration of all the available data, as having been the general average of the old Saxon race. It is also very nearly that which Roberts and Rawson, looking chiefly to the classes whose mode of nurture gives them a fair chance of development, would consider to be the average of the same race in modern times.

I am willing, however, to resign my own proposed method of mensuration; for, though I still think it the best and most easy of application in those numerous cases where the femur alone of the long bones has been preserved or measured, it may well be of inferior merit in such cases as these, where so many of the long bones have been preserved and carefully examined.

Moreover, it has very little chance of general adoption. It is exceedingly desirable that some one system should be universally employed; and the data of Topinard furnish the only probable basis for such a system. It is earnestly to be hoped that he will be able to find time to extend those data and perfect a system.

Meantime, a little ambiguity has arisen, from the fact that the figures in the "*Anthropologie Generale*" are not in every case consistent,¹ and that they refer to the stature of the skeleton, which, Topinard says, should be amplified by 35 millimeters, or about 1·4 English inch, in order to get the living stature.

I have re-calculated the proportions, allowing the required 1·4 inch for the soft parts in every case, and find that 27 for the femur, 21·7 for the tibia, 19·65 for the humerus, and 14·25 for the radius, are about the figures that should correspond to 100 of living stature, if we neglect the differences of proportion which I conceive to exist between short and tall men respectively.

By the application of these rules I have brought out the following results:—

			From complete lower extremity only.		From the four bones, f., t., h., and r.	
			mm.	inches.	mm.	inches.
Woodcuts, males	7	.. ..	1648	64·88	1660	65·37
females	6	.. ..	1537	60·5	1546	60·8
Rotherley, males	11	.. ..	1577	62·1	1588	62·5
females	3	.. ..	1489	58·66	1492	58·8
Winklebury, males	9	.. ..	1721	67·43	1726	67·62
females	5	.. ..	1618	63·72	1612	63·45
Woodcuts and Rotherley	} males	18 ..	1611	63·42	1616	63·62
females		9 ..	1521	59·88	1529	60·2

¹ Pages 474, 475, 1040, 1041. 220, page 475, is a misprint for 202; 20·7 (hamerus), page 1041, for 20·0, and 23·3 (tibia), page 1042, for 22·3.

We have therefore a remarkable difference in the stature of the two races of which we have been speaking, a difference which extends to several inches at least, and which occurs in both sexes and is independent of differences of age.

There is, however, no very noteworthy variation in the length of the clavicle (indicating breadth of shoulders), nor in the circumference of the long bones; the British villagers, though much shorter in stature, were scarcely less solidly built than their conquerors; the difference was almost limited to the length of the trunk and members, especially the lower limbs.

This defect of stature in the Britons was no mere accident; else why should it have occurred in both villages, and affected both sexes. Was it a local peculiarity? That could hardly be; and here, I would remark that the Romano-Britons of White Horse Hill, described by Davis and Thurnam, were also short, though taller than our present subjects.

Was the phenomenon in any degree the result of long continued oppression by their rulers, heavy taxation, and consequently scanty food through successive generations; or of the draining away of their tall young men, time after time, for military service?

Both suggestions have been made by General Pitt Rivers, and it seems probable enough that both causes may have been materially operative through several generations.

It will be observed that in both series, especially in the British one, there are instances of an approach to platycnemism.

Other individual peculiarities have been noted in the schedules. One of the most markworthy is the Roman character of No. 8 British skull (Woodcuts). It is very like that of L. Volusius Secundus, figured in the *Crania Britannica* by Barnard Davis. The skull from the round barrow in "Susan Gibbs's Walk," is a perfectly typical "bronze" one. The disproportion between the parietal radius and arc is very characteristic of this type. Rushmore is situated in a district which up to our own time constitutes a kind of ethnic frontier. The complexion and features of the modern inhabitants seem to indicate that the West Saxons, having settled in force about Salisbury and Wilton, pushed up the diverging river-valleys to Warminster, Tisbury and *Mere*; beyond these points their advance may have been checked for a generation or two; and their subsequent conquests may probably have had less of the character of colonization than of military and seignorial occupation. The most prevalent types further west, as at Gillingham and Wincanton, are certainly not Saxon. It will be of the greatest interest to determine, now that we know Bokerley Dyke to be

post-Roman, whether the modern lines of race-division correspond to the lines of the ancient earthworks.

Further notes on Proportion and Stature.

Since this paper was read, I have examined a good deal of material bearing on the question of the uniformity of proportion of the length of the long bones to the stature. The results are more curious than satisfactory.

Dr. Etienne Rollet, of Lyon ("Mensuration des os longs des membres") having measured 50 male and 50 female corpses, comes to the conclusion that among males the long bones are proportionally *shorter* in tall persons, while among females the lower extremity only is longer.

He, however, quotes Sappey, who in a series of 40 males and 30 females found the proportional length of the lower extremity distinctly greater in tall persons, in both sexes; and Collignon, whose figures agree with Sappey's.

Rollet's method of calculation, which differs from Topinard's, brings out, from the femur and the humerus, a stature of only 5 feet 1.55 for the Rotherley men, and 5 feet 4.7 for those of Woodcuts.

I have also gone over the measurements of Weisbach, in the report of the Novara expedition, hoping to gain some further light on the subject of proportions from his measurements of the lower extremity. He measured from the trochanter to the external condyle for the thigh, and thence to the external malleolus for the leg. I have added together the lengths of the leg and thigh, and taken their proportion to the stature; it is not very different from our leg-index, roughly speaking.

The results in 30 German men and 11 German women show an increasing leg-index with increasing stature. In 20 Slav men and in 10 Rouman men, on the contrary, there is a slight decrease.

In Nicobar men, of whom Weisbach had a large number (51), there is scarcely any difference, and the same is the case with the Bugis; if anything, the indication is one of decrease. On the other hand, in Amboyna men, in Javanese, both men and women, in Sunda women, and in Tahitian women, there is a very considerable increase of leg-index with increasing stature; and the Chinese seem to fall into the same class.

But by far the most extensive series of measurements bearing on that point is that in the Anthropometric Manual of Amherst College, by Drs. Hitchcock and Seelye. From 888 measurements we gather that in the American student the leg-index does increase in the direct ratio of the stature, but it would

seem that this increase is due mainly to the greater proportionate length of the tibia rather than of the femur. In young men from 160 to 167 centimeters in stature, the leg-index is only 46·6, in those from 168 to 175 it is 47; in those from 176 to 183 centimeters, inclusive, it is 48. The pubic heights (49·9, 50·5, 50·4) and the umbilical heights (59·3, 59·8, 60·2) confirm the indications of the leg-index.

On the whole, then, it may be said to be the rule that the leg-index does increase in the direct ratio of the stature; but the exceptions are numerous. Is it a mere accident that most of the exceptional series occur among the brachycephali of central Europe (the Celts of Lyon, the Slavs, the Roumans) ?

DISCUSSION.

Mr. F. GALTON feared that the risk of error would be large in endeavouring to identify the race to which skeletons belonged from the statures of a few specimens. Stature was known to be largely dependent on nurture, as shown by the great difference between that of the artizan and of the professional class in our own country, and again by the present large number of very tall English women, much in excess of what used to be observed, due apparently to the more healthy condition of female life in modern times among the well-to-do classes. The varieties in the value of mean stature had also been strongly forced upon his notice during several recent enquiries into different groups. They would probably be no less conspicuous under the rude conditions in which the people existed who were spoken of by Dr. Beddoe. He had witnessed a remarkable degree of variety among the Damaras, of whom some had cattle and lived plentifully on milk; these were magnificent men, frequently exceeding 6 feet 2 inches. The remainder were very poor; they had no cattle of their own, but lived chiefly on such roots as they dug up, or on other chance means of sustenance, and were far less tall. The statures of a few skeletons dug up in Damaraland could not, he was sure, be trusted to tell much about the race to which they belonged.

Prof. FLOWER and Prof. THANE also joined in the discussion.

Dr. BEDDOE, in reply, expressed his satisfaction at the result of Prof. Humphrey's investigation, as reported by Prof. Thane. If the angle of the femur did not really become less open in old people, a considerable addition to the material belonging to the early races, and available for measurement, would be made.

The following paper was then read by the Author :—

*A DEMONSTRATION of CENTRES of IDEATION in the BRAIN
from OBSERVATION and EXPERIMENT.*

By BERNARD HOLLANDER, Esq.

ON the 22nd February, 1887, Prof. David Ferrier delivered an address in this room on the question, "How far recent investigations on the functional topography of the brain could be brought in relation with craniological and anthropological researches with a view to establish the foundation of a scientific phrenology." It is my object to-night to continue that discussion, and to submit to you the basis of a scientific phrenology for your examination and criticism. I take it for granted:—

1. That all mind-manifestation is dependent on brain-matter;
2. That the various elements of the mind have distinct seats in the brain—which, however, have not been as yet determined;
3. That the recent researches by physiological experimenters and pathological investigators—which have resulted in defining distinct regions for motion and sensation—established the physiological correlative of psychological actions.

By applying galvanic currents to definite portions of the brain, or by destroying certain areas, physiological experimenters cause movements of certain limbs and muscles. In itself the distribution of motor areas in the brain would be of little value to the psychologist except that it proves to him the plurality of functions of the brain. When, however, we observe that the movements caused by excitation form the physical parallel of a mental action, we may arrive at the psychological function of a certain portion of brain, by reducing the various faculties of the mind to their elements, and watching their physical expression. No galvanic current will ever have the effect of demonstrating a centre of ideation, say: the centre for the emotion of power; on the other hand, there are several emotions and all the higher intellectual operations, which have no outward physical signs. All, which the excitation of that portion of brain, where the emotion of power may have its centre, can effect, is certain movements which such an emotion would cause when irritated.

To arrive then at the demonstration of centres of ideation there is but one way:—

1. We must observe the physical expression of our thoughts and feelings, as far as possible; in other words, we

must study the outward visible signs of their manifestation ;

2. We must take the limbs and muscles, which are affected by definite emotions, and see on what occasions they are made to move by central excitation.

Let me give an example. The outward sign of a joyful emotion is a drawing up of the corners of the mouth. The elevation of the angles of the mouth is the muscular action going parallel with the emotion of joy. The excitation of the nerve-centre causes the elevators to act. There is but one definite area, from which the elevator muscles can be made to act, therefore joyful emotions must take their start from this centre. When then a joyful emotion excites this definite portion of grey matter, a nerve-current passes to the lower centre—the centre for the movements of the elevator muscles—and causes them to act. As the brain is a very complex machine, other effects may be produced at the same time, but this one has always been associated particularly with exhilarating emotions. Persons of very cheerful dispositions make the elevators act so frequently, that the mechanism of the nerve-display is facilitated by constant use, and the centre will easier appreciate these special impressions. The elevators will be in time so accustomed to act, that they will leave impressions on the face so marked to enable people to recognise, by mere physiognomical signs, their brethren, who are of such disposition.

Now, let us see what the actual experiments were.

Prof. Ferrier applied a galvanic current to the ascending frontal convolution in monkeys on a definite portion marked (7), and to the corresponding region in dogs, jackals, and cats, all with the effect of elevating the cheeks and angles of the mouth with closure of the eyes. On no other region could the same be effected.

Darwin ("Expression of the Emotions," p. 202, &c.) says :—

"Dr. Duchenne repeatedly insists that under the emotion of joy, the mouth is acted on exclusively by the great zygomatic muscles, which serve to draw the corners backwards and upwards. The upper and lower orbicular muscles are at the same time more or less contracted. A man in high spirits, though he may not actually smile, commonly exhibits some tendency to the retraction of the corners of his mouth. According to Sir Chas. Bell, in all the exhilarating emotions the eyebrows, eyelids, the nostrils, and the angles of the mouth are raised. The tendency in the zygomatic muscles to contract under pleasurable emotions is shown by a curious fact communicated to me by

DIAGRAM

OF CRANIO-CEREBRAL RELATIONS.

(Beid.)

Some of the results of

Observations

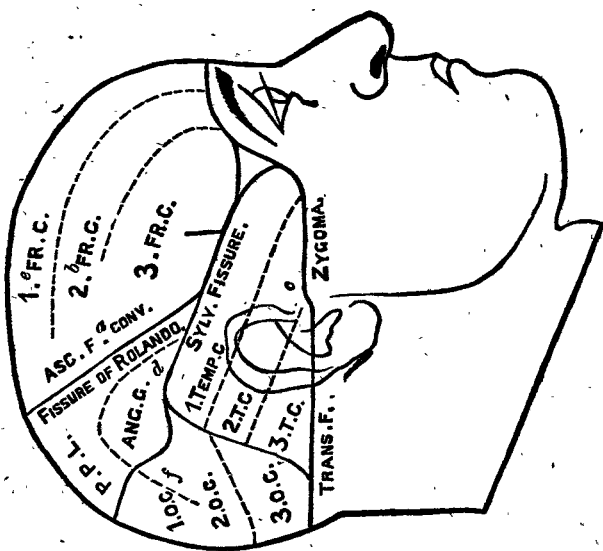
made by the early phrenologists.

a. Hope.
The organ of cheerfulness.*b. Imitation.*
The organ of mimicry.*c. Alimentiveness.*
The gustatory organ.*d. Cautiousness.*
The organ of circumspection,
fear, timidity.*e. Veneration.*
The organ of submission, respect,
devotion.*f. Attachment.*
The organ of friendship.

Some of the results of

Experiments

made by modern physiologists.

a. Centre for the movements of the
Elevator Muscles. (Elevating the
cheeks and angles of the mouth.)*b. Facial Nerve Centre.*
Centre for facial movements.*c. Gustatory Centre.**d.* Centre for movements of the
Platysma myoides, the muscle
of fright.*e.* Centre for movements of the arm
and raising of the shoulders.
Patience Muscles.

N. B.—Some of the reference-letters have not been engraved exactly in their proper positions. The *d* should be placed rather lower down; and the *e* should stand on the left, instead of the right, of figure 1.

Dr. Browne with respect to patients suffering from general paralysis of the insane: 'In this malady there is almost invariably optimism—delusions as to wealth, rank, grandeur—insane joyousness, benevolence and profusion, while its very earliest physical symptom is trembling at the corners of the mouth and at the outer corners of the eyes. This is a well recognised fact.' "

We have then sufficient evidence that the effect produced by galvanic current on the portion of brain marked (7) in Ferrier's topography is the physical expression of joy. We know then for positive that pleasurable emotions excite this centre. But I do not say, that it is the function of the centre to produce an emotion of joy—a manner after which the old phrenologists would have expressed themselves—I merely note that all pleasurable emotions produce a nerve current, which takes its start in this region.

Sir Crichton-Browne tells us, that in general paralysis of the insane, there is invariably optimism, beginning generally with trembling at the corners of the mouth and the outer-corners of the eye. The old phrenologists located "hope" in this region, and there is, no doubt, a strong relation between hope and optimism, and I find, in the writings of Combe, frequent allusions that this organ gave a tendency to cheerfulness. At the same time, I must note that Gall, the founder of phrenology, did not admit "hope" as a faculty, but included this portion of brain in his organ of "imitation" or "centre for mimicry," of which I shall speak directly.

There are many defects in the old phrenological system; one of them being that it rather favoured complex functions. But all the same, an unprejudiced investigator must take their observations into consideration. I need not remark that, when I refer to phrenology, I mean only the observations of Gall, and not the fancies and fallacies of his followers.

This centre for the elevator muscles, and probable centre, from which exhilarating emotions take their start, is in close connection with Exner's centre for the facial nerve.

Ferrier's centre, No. 7, is a little lower than the centre for the "nervus facialis" as located by Exner ("Localisation der Functionen in der Grosshirnrinde des Menschen," Wien, 1881). The "nervus facialis" centre occupies a very large portion of brain in Exner's collection of pathological evidence. The most intense centres for facial movements are localised by him in the squares marked 57, 58, 65, but are said to extend actually from the gyrus centralis anterior to the latter halves of the lower frontal convolutions. He quotes many cases of disease of this nerve, and is particularly struck with the frequency with which disease

of the facial nerve and aphasia concur. He says (p. 56), it cannot be mere chance that paralysis of the facialis is frequently accompanied by aphasia and the reverse: an observation which was also made by Ferrier.

There is sufficient evidence that the centre for the facial movements occupies an area extending from the ascending frontal convolution to the middle frontal convolution—a fact which was noted by Gall. He located in this region the talent for mimicry, the talent of imitating the gestures of other people; more than this, he noted that, when this region was prominently developed, there was not only a talent for mimicry, but also a talent for the imitation of the voice of other people, and many examinations and casts of heads of eminent actors were made to prove this theory.

We have heard from Exner and Ferrier how closely the speech and facial nerve centres are connected; both in perfection being necessary for a clever actor. But let me quote Gall himself. Speaking of a man with a peculiar prominence of this region, he says:—

“He imitated in so striking a manner the gait, the gestures, the sound of the voice, &c., that the person was immediately recognised. I hastened to the institution for the deaf and dumb to examine the head of the pupil Casteigner, who had been received into the establishment six weeks previous, and who, from the first, had fixed our attention by his prodigious talent for imitation. On Shrove-Tuesday, when a little theatrical piece is usually represented in the establishment, he had imitated so perfectly the gesture, the gait, &c., of the directors, inspector, physician, and surgeon of the institute, and especially of some women, that it was impossible to mistake; a scene which amused the more, as nothing like it was expected from a boy whose education had been absolutely neglected.”

He goes on to explain that many men have a natural talent for the stage or pantomime, and that the history of the lives of great actors shows, that the majority of them had received little education and were intended for some other profession, but their innate disposition drove them to the stage. The faculty of imitation is exercised sometimes even in idiots and madmen. Pinel says:—

“A young idiot whom I have long had under my eye, has the most marked and irresistible inclination to imitate all that she sees done in her presence; she repeats mechanically all that she hears said, and imitates with the greatest fidelity the gestures and actions of others, without much regard to propriety.”

I cannot go into details to-night as to the ample evidence, pathological and otherwise, which the early phrenologists brought

forward in their time. They were only ridiculed and treated as charlatans. To-day people know nothing of the old phrenology, except what they hear from opponents and read in books by some phrenological dilettanti. Scientific men think Gall's theory exploded, because Sir Wm. Hamilton and Flourens appeared to disprove it, but we know, since 1870, that the doctrines of these two men are equally valueless, for Flourens taught that the whole brain acted as an organ of the mind and not, as we know now, that special parts of the brain have separate functions, while Sir Wm. Hamilton considered it impossible to form a system on the supposed parallelism of brain and mind. L. Landois ("Lehrbuch der Physiologie") recommends a re-examination of Gall's theories, and I hope to show you to-night that, whatever you may think of the phrenological system, Gall's fundamental observations were correct.

Ferrier's experiments on monkeys on the anterior and inner aspect of the uncinate gyrus, marked (15), had the effect of "torsion of the lip and semiclosure of the nostril on the same side, as when the interior of the nostril is irritated by some pungent odour." He says (p. 244, "The Functions of the Brain," London, 1886):—

"Irritation of the middle temporo-sphenoidal convolution I have found in general to be without any obvious reaction except towards the lower extremity, where in several instances movements of the tongue, cheek pouches, and jaws were induced very much like those which are characteristic of tasting."

The same experiment on (15), the uncinate gyrus or extremity of the temporal lobe of dogs had the result of "torsion of the nostril on the same side, as if from irritation directly applied to the nostril." The same effect was produced by experiments on cats and other animals. He continues:—

P. 315. "As above described, irritation of the hippocampal lobule in the monkey, cat, dog, and rabbit was attended by essentially the same reaction in all, viz., a peculiar torsion of the lip and nostril on the same side. This reaction is precisely the same as is introduced in these animals by the direct application of some strong or disagreeable odour to the nostril, and is evidently the outward or associated expression of excited olfactory sensation."

P. 321. "As to the sense of taste. I have not succeeded in differentiating any special region related to this faculty, but that it is in close relation with the olfactory centre is probable from the facts described. It was noted in connection with electrical irritation of the lower extremity of the temporo-sphenoidal convolutions in the monkey, and of the same region in the brain of the cat, that movements of the lips, tongue,

neck-pouches, and jaws, were occasionally induced—phenomena, which might be regarded as indications of the excitatory sensation. This interpretation receives support from the above described results of destructive lesions, and we have, therefore, reasonable grounds for concluding that the gustatory centres are situated at the lower extremity of the temporo-sphenoidal lobes, in close relation with those of

P. 431. "The physiological needs of the organism, in so far as they induce locally discriminable sensations, express themselves subjectively as definite appetites or desires, which are the conscious correlations of physiological wants. The appetite of hunger is the desire to satisfy or remove a local sensation, referable to the stomach, in which the physiological needs of the stomach express themselves. The substrata of the feeling of hunger and appetite for food are the stomachic branches of the vagus and their cerebral centres, and as local conditions of the stomach may destroy or increase the feeling of hunger, so central conditions may give rise to ravenous appetite or sitophobia, conditions exemplified in certain forms of insanity."

Ferrier thus proves the tip of the lower temporal convolutions to be the "gustatory centre," and even Hitzig, who is not always flattering to Prof. Ferrier, delights in noting this discovery. Yet, I will show you immediately that this centre—of which we are most certain—was known and correctly localised in the same portion of brain by the early phrenologists.

Many men claimed the discovery of the organ called "gustativeness," or "alimentiveness," but the Editors of the "Edinburgh Phrenological Journal," Vol. 10, p. 249, give Dr. Hoppe of Copenhagen the credit of having been the first and most acute observer.

"In December, 1823, he expresses the opinion, that besides the nerves of the stomach and palate, of which alone he conceived the sensations of hunger and thirst to be affections, there must be also an organ in the brain of animals for the instinct for the preservation of life, which incites us to the casual enjoyments of the palate, and the activity of which is of hunger and thirst."

In a second communication to the same journal, dated 28th December, 1824, he says:—

"Regarding the organ for taking nourishment, I have been to think, since I wrote last, that the place where its greatest degrees of development are manifested in the living is in the fossa zygomatica. Before I had thought at all of phrenology I was struck with the remarkable breadth of the forehead of a friend of mine, caused, not by prominent

cheekbones, as in some varieties of mankind, but more toward the ears, by the great convexity of the zygomatic arch. Knowing that this individual was exceedingly fond of good living, and that, even in spite of a very powerful intellect, and propensities moderate in almost every other respect, he was prone to indulge too freely in the joys of the table, I afterwards thought that this form of the head and tendency of the mind might bear a nearer relation to each other than had at first occurred to me, and in some other persons, notoriously fond of good eating and drinking, I found a confirmation of my suppositions. This prominence of the bony arch, I think, must be an absolute consequence of the part of the cranium lying under the temporal muscle being pushed outward, and diminishing, in that direction, the space of the fossa."

Dr. Hoppe considered the organ "alimentiveness" to be likewise the organ of taste. He says:—

"That the sensation of taste only passes through the nerves and is perceived in a part of the brain is a supposition, I think, sufficiently proved. Now, it appears to me as highly probable, and by analogy agreeing with other experience, that it is one and the same organ which tastes, viz., distinguishes and enjoys, and incites us to taste, or in other terms, to take food and drink. This, according to my opinion, is the organ of appetite for food and consequently it may be named the organ of taste, gustus."

Dr. Crook, of London, mentions that several years before the publication of Dr. Hoppe's papers, he himself had arrived at similar conclusions with regard to this faculty and the position of its organ. He says:—

"Three persons with whom I had become acquainted in the year 1819, first led me to suspect that a portion of brain situated near the front of the ear, was connected with the pleasures of the festive board. From that time to the end of 1822 above a thousand observations were made. As they tended to confirm this view, several phrenological friends were informed of the result. From 1823 I no longer doubted that the anterior portion of the middle lobe was a distinct organ, and that its primary use was the discrimination and enjoyment of meats and drink. It was difficult, however, to hit the fundamental power. The situation of the organ, under the zygomatic process and the temporal muscle, frequently precluded the possibility of accurate observation. But, notwithstanding, well-marked cases, both of a positive and a negative kind, were investigated."

A long controversy follows this paper on "alimentiveness," the gustatory centre, in the "*Phrenological Journal*," and much ridicule was thrown at the originators for localising a centre for

anger and thirst, those affections being thought due to the
Even to-day scientific men say phrenology is
because certain thicknesses in the skull and the various
muscles make it impossible to distinguish the corresponding
of brain; yet it is remarkable that the organ which
is ridiculed most and which was the most difficult to
is to-day found correct.

If there were but two organs correctly localised by Gall, it
would justify a reconsideration of his work; but there seems to
be a number of faculties, the localisation of which has been
confirmed by modern experiments. Unfortunately the later
phrenologists have spoilt many of Gall's original observations.
I will just give a few more examples in order that my paper
may receive sufficient consideration, and may effect a change
in your views with regard to the old phrenology.

Prof. Ferrier's experiments on "the lower extremity of the
ascending parietal convolution" in monkeys marked (11), re-
sulted in "retraction of the angle of the mouth. The action is
that of the platysma myoides."

Darwin ("Expression of Emotions," p. 298), says with regard
to the physical expression of "fear," and the platysma myoides
muscle:—

"Sir Charles Bell ('Anatomy of Expression,' p. 168) and
others have stated that this muscle is strongly contracted under
the influence of fear, and Duchenne insists so strongly on its
importance in the expression of this emotion that he calls it
the muscle of fright."

This may perhaps suffice to show that the platysma myoides
muscle is called into action in the expression of fear.

Now let me draw your attention again to the old phrenology.
Gall located so-called "cautiousness," in an area which covers
not only Ferrier's centre (11), but also the angular gyrus. He
an enormous development of this region in persons
known for their timidity, persons known to take alarm easily,
could be easily terrified.

to the function of the angular gyrus physiologists are no

Ferrier includes the gyrus in his centre of sight
it "Seelenblindheit," a strange name with a still
deeper meaning.

will quote some passages, which seem to indicate, that the
is produced by lesion of this region have some connection
the function attributed to it by phrenologists.
rier, Phil. Transactions, 1875, Part II, p. 445-51, Resumé:
er destruction of the angular gyrus the animal commences to
and cautiously; if pushed to move, it runs against every
in the way. If put on the floor, it cries out and looks

about quite frightened. If called, it points its ears and cries. If taken up again, it clings to one as if afraid of being put down. On the other hand, threatening with the stick has no effect, unless the stick is brought in contact with the eyes."

Munk ("Functionen der Grosshirnrinde," p. 25, etc.) makes the same observations as Ferrier, only his region of destruction, marked A, includes a portion of brain, where Gall located his organ of "Friendship" or "Attachment" (see diagram, p. 19) and Munk, speaking of the effect, says: "However, the animal remains cold at the sight of men, whom it used to greet most friendly, and, even at the sight of dogs, with whom it used to play:" an effect, which can be easily explained on phrenological principles, by the loss of the organ of "attachment" or "friendship." He goes on to remark, that the whip, which formerly frightened the animal away to a corner, has now no effect. The animal stops before every obstacle on its path and turns back again; one has to push it to go up any steps, and then, it feels its way with its nose, though not blind. When recovering, it stares at everything and examines every object most cautiously, both when lying down and walking about, just as if it had to learn afresh and gain new experience.

Goltz ("Verrichtungen des Grosshirns," p. 18, &c.) says, it is a well-known fact, that animals are easily put into rage by the appearance of a person in strange costume. He got his servant dressed up in fantastic attire and his dog would have torn him to pieces, had not proper precautions been taken. When the dog, however, had been operated upon, and the experiment was repeated, he remained perfectly calm, even when the servant stepped quite close to him, though the animal was by no means blind.

It is not difficult to detect in all these experiments an affection of some faculty, which, when excited, causes timidity. What the element of that faculty is, I cannot tell, but in its actions it is concerned with the emotion of fear.

Professor Ferrier found, when experimenting on dogs and other animals on a portion of brain marked (5), which corresponds to "the ascending frontal convolution at the base of the superior frontal" in the human brain, elevation of shoulder and extension forwards of the opposite fore-limb, or flexion of the fore-arm and paw.

Now, according to Darwin, raising of the shoulders—some times accompanied by extension of the arms—is a sign of non-resistance. He inquires, p. 271:—

"Why men in all parts of the world when they feel—whether or not they wish to show this feeling—that they cannot or will not do something, or will not resist something if

by another, shrug their shoulders, at the same time often in their elbows, showing the palms of their hands with fingers, often throwing their heads a little on one side, raising their eyebrows, and opening their mouth."

p. 270 he says:—

"shrugging the shoulders likewise expresses patience or the want of any intention to resist. Hence the muscles which move the shoulders are sometimes called, as I have been informed by an artist, the patience muscles."

Mantegazza ("La physionomie et les sentiments," p. 113, &c.) dwells on the importance of the movements of the arm in the act of submission, devotion, and veneration. Darwin doubted whether the kneeling posture with the hands upturned and palms joined is an innate expression of devotion, but rather thought this posture a sign of submission. Mantegazza differs from Darwin; he holds that it is from the habit we have from our childhood to join our hands for prayer, that we employ the gesture when appealing to human beings, who can do us either much good or great harm. He thinks this gesture is innate and not acquired. He questioned many artists and gives as the result distinct rules, showing the importance which the position of hand and arm play in the expression of veneration and devotion.

We know then, that the raising of the shoulders together with the bending of the arms and hands are concerned in the physical expression of submission or non-resistance.

The old phrenologists located in this region their organ of "veneration," which is to give an impulse to devotion and worship. Combe ("System of Phrenology," p. 212) says:—

"Children who are prone to rebellion, regardless of authority, little attentive to command, will generally be found to have this organ deficient. Veneration leads to deference for superiors, rank as well as in years, and prompts to the reverence of authority."

"Veneration," say the phrenologists, produces an instinctive feeling of respect; a defect of "veneration" has the effect of diminishing the reverence for power. Dr. Spurzheim called it the emotion of reverence and respect.

We see again the strong relation between the old phrenology and the results of the experiments of modern phrenology. On one hand I have shown you, that the effect produced by the faradisation is the natural language of a feeling of non-resistance; on the other, that observations of Gall resulted in the localization of this portion of brain the seat of the emotion of veneration. Of course, respectful people do not

Gall appears to me to have been aware of the importance, that the study of the physical expression of our emotions and thoughts will play some day, and to have been expecting that this study of the physical parallel to our mental operations will furnish new evidence for his or any other system, built upon the parallelism of brain and mind. He devotes a chapter to pathognomy, of which the following extract may prove interesting:—

“This art is founded on nature herself; for it is nature, that prompts all the gestures, the attitudes, the movements, finally the whole mimicry, by which men and animals express all their feelings and ideas. Pathognomy has its fixed and immutable laws, whether we apply it to man or to animals, so long as the question relates to the same feelings and the same ideas. Pathognomy is the universal language of all nations and of all animals. There is no beast or man who does not learn it; there is no beast or man who does not understand it. It accompanies language and strengthens its expressions; it supplies the defects of articulate language. Words may be ambiguous but pathognomy never is so. What would become of engraving, painting, sculpture, the comic art, eloquence, poetry, if the expression of the sentiments and ideas were not subjected to immutable laws? What means would they have in their power to paint modesty, prudence, fear, despair, baseness, joy, anger, contempt, pride or devotion? Where is the animal or man who takes time to deliberate on the manner, in which he would make his feelings and his ideas understood by others? Even at the moment when the feelings and the ideas arise, they are written on the exterior in characters discernible by all the world. It is certain, therefore, that the feelings, ideas, affections, and passions are manifested by suitable expression according to determinate and invariable laws.”

Gall noted the physical expressions of our emotions, though he could give us no explanation of its cause.

With the assistance of Hitzig, Fritsch, and Ferrier's experiments on the one hand, and Gratiolet, Piderit, Darwin and Mantegazza's observations on the other, I have endeavoured to show you to-night: (1) the reason why certain muscles and limbs are called into action by certain feelings and emotions; and (2) how to demonstrate centres of ideation by comparing the physiological experiments with pathognomy.

My work is, however, not complete, for first of all, I have not attempted to find the elements of those faculties which I located; secondly, we must take into consideration that mind, like brain, is very complicated, and even had philosophers ever agreed as to its elements, we know from experience that an emotion seldom acts singly.

He all novelties my paper will create some opposition, but not fear criticism: I only ask for a re-examination of Gall's. I believe has been rejected without due considera-

DISCUSSION.

Dr. BEDDOR thought that, although phrenologists had erected an edifice of straw and rubbish on the foundations laid by Gall and others, these last had been men of considerable power and acuteness, whose observations ought not to be neglected in any new attempts at the localization of faculty.

Dr. FERRIER remarked that as the relations between brain and mind were still in many respects very obscure, he cordially welcomed any attempt to throw light on the problem. So far the physiological or objective functions of certain cerebral regions had been determined, but the question was, what are the correlations between the objective and the subjective or psychological aspects of these same regions. As the brain was composed of sensory and motor substrata, and as the brain was the organ of ideation, therefore ideation was the functioning of centres whose objective functions were motor and sensory. That there was a relation between development of certain regions and certain motor and sensory abilities and capacities was undoubted, and was amply proved by the facts of comparative anatomy and physiology, normal and morbid. But whether any particular centre could be taken as the index of particular intellectual faculty or peculiarity was a totally different matter. For the same centre might be called into action in connection with unnameable mental states. Of which would it be the index? Mr. Hollander's speculations in relation to so-called phrenological doctrines were ingenious, but we wanted was evidence founded on careful investigation and to strictly scientific methods serving to indicate a relation between the development of particular centres and particular mental faculties, aptitudes, or peculiarities. At present he did not think that there was any such worthy of consideration as the general indications above mentioned. But the subject was one which was worthy of careful study, and the solution might one day become possible.

Dr. WAKENFIELD said that as men's minds undoubtedly differed from each other in their natural characteristics so, it might be presumed, did also the physical organs through which mind manifested itself. Was it possible to detect these differences? Were there also, localised centres of action corresponding to certain faculties or powers of the mind? This was the problem for solution. Some facts had come under his observation which led him to think that the solution was not hopeless. The progress made in this department of knowledge as to the relation of mind and body was but slow and uncertain.

Discussion.

Mr. G. BERTIN remarked that it had been ascertained that the faculty of sight was localized in a convolution of the posterior part of the brain, and as we know that the faculty of speech is localized in the third left frontal convolution, it would seem that modern discoveries disprove the assumptions of the phrenologists. One great mistake of their system is to attribute the same faculties to the two lobes of the brain, a fact disproved by the localization of the faculty of speech on the left side. Another thing lost sight of, is that the examination of the head could only show the development of the surface of the brain; while we have no means to detect its inner development. Nor must we forget that the skull does not change after a certain age, though faculties may be still developing. Another mistake of phrenologists is to localize faculties too much; if phrenology is to become a science, broader lines will have to be followed, and Mr. Hollander's careful researches will do much to further this object.

Professor THANE and Dr. EDRIDGE-GREEN also took part in the discussion.

Mr. HOLLANDER in reply, observed that nobody disputes the fact that there are brain centres for ideation; the question is only as to their localization. But as the objective side, *i.e.*, the physical correlative of mental manifestation, has been in many cases successfully established, there remains but the demonstration of the subjective side. How far the speaker had succeeded in this, may be judged when the paper is read in type. So far he had not excited opposition. But now comes the coincidence that some of Professor Ferrier's researches, especially on the gustatory centre, confirm the early phrenological observations, long ago rejected. By careful examination and a thorough study of Gall's works the speaker found that there was a sound basis to his system. Gall had extraordinary powers of observation, and was an expert in comparative anatomy. He noticed the resemblance between the skulls of murderers and the skulls of carnivorous animals; the predominance of the temporal lobe struck him, and both Professor Benedict and Lombroso—the authorities on criminal anthropology—testify as to its correctness. Gall, in the same manner, noticed peculiarities in the heads of actors, poets, musicians, &c. He reasoned that there must be in the case of murderers an organ giving an impulse to destroy or kill ("destructiveness"), in the case of mimics an organ giving an impulse to imitate ("organ of imitation"), &c. Now these deductions are open to criticism, but the original observations are beyond dispute. There are no two characters alike, neither are there two skulls alike. The question in both cases is: how to measure the differences. There is no instrument for the measurement of those "ups and downs," protuberances and depressions of the living head. Between the skull of a Goethe and that of a murderer there are innumerable varieties. As we are able to distinguish the two extremes, why

... of ...
 ... we not succeed in demonstrating the intermediate stages.
 ... system was rejected at its first appearance, because it
 ... to upset familiar notions about the liberty of the will,
 ... special creation, and supernatural religion. This was the
 ... e, and very few men, even now-a-days, care to risk the
 ... of opposing popular opinion. The author had attempted a
 ... of Gall's system, more scientific and appealing to the learned
 ... He hoped that it would be received without prejudice.

FEBRUARY 26TH, 1889.

JOHN BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of JOHN GOLD PHILPOT, Esq., of Lyme Regis, was
 announced.

The following presents were announced, and thanks voted to
 the respective donors:—

FOR THE LIBRARY.

the AUTHOR.—Ein neuer Schädelträger und Schädelmesser.
 Von Dr. Josef Mies.

—Zusätze zu den Erklärungen der einliegenden linearen
 Darstellung von Schädel-und Gesichts-Indices. Von Dr.
 Josef Mies.

—Beschreibung und Anwendung eines neuen kranimetrischen
 Instrumentes. Von Dr. Josef Mies.

—Demags kapabomas mäl ko vödem plänöl, al plösenön gleglupis
 kotefamanumas lonedas gletikün al vids gletikün e lonedas
 gletikün al geils segun, balam bevünetik de Frankfurt', fömā
 posdunots seaseitlik fol. Fa dl. Mies.

—O Góralach Ruskich w Galicyi. By Prof. Dr. I. Koperpiel

the CURATOR OF THE CAMBRIDGE UNIVERSITY MUSEUM OF
 GENERAL AND LOCAL ARCHAEOLOGY.—First, Second, Third, and
 Fourth Annual Reports of the Antiquarian Committee to the
 Senate, 1885-1888.

of the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE,
 UND URGESCHICHTE.—Archiv für Anthropologie. Band xviii.

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—— Revue Scientifique. Tome xliii. Nos. 7, 8.

EXHIBITION of INSTRUMENTS (1) for TESTING PERCEPTION of DIFFERENCES of TINT, and (2) for DETERMINING REACTION-TIME.

By FRANCIS GALTON, ESQ., F.R.S.

1. *Instrument for testing the perception of differences of Tint.*

Mr. F. Galton exhibited a new instrument designed by himself. It was a long box blackened inside, that had a horizontal slot at one end, A, to look in at, and two square windows B₁ B₂ at the other end, B to look out at. The box is directed towards a screen of white paper easily illuminated, so that the observer looking through A sees two bright windows in front of him, all the rest being dark. His eyes are well shaded by three wings attached to the box at A, one above, and one at either side.

The upper part of the end of the box towards B is hinged and can be turned back; then two graduated wheels D₁ and D₂ are disclosed. They turn independently on the same axis which is fixed through the horizontal partition that divides the wheels. Each wheel carries a light frame set across its diameter at right angles to its face. Similar gratings G₁ G₂ of fine wire (or else slips of coloured glass) can be inserted into these frames. Thus the piece consisting of D₁ and G₁ is exactly similar to that consisting of D₂ and G₂, but the two pieces are placed in opposite aspects, D₁ and D₂ being on different sides of the partition, and G₁ and G₂ standing outwards from them respectively. The wheel D₂ can be set by the experimenter in any desired position, and D₁ can be rotated by the person who is being tested, whenever he pleases to turn a stud S, with which D₁ is connected by a string.

Now when the grating (or the glass) is inclined to the line of sight, less of the light from the screen that passes through the

corresponding window reaches his eye than when it is set more squarely. Therefore the brightness of the two windows cannot be the same unless the graduations on D_1 and D_2 correspond in position.

To perform the test:—Open the hinged end at B; set D_2 to any desired angle; close the hinged end. The person to be tested now looks through A, and turns the stud S until he has to the best of his judgment matched the tint of the window B_1 with that of B_2 . Then the operator opens the hinged end and reads off the difference, if any, in the position of D_1 and D_2 .

(The precise value to be assigned to each degree of difference of graduation under the most suitable test conditions, has not yet been calculated, the instrument being still in an experimental stage).

2. *Instrument for determining Reaction-time.*

This instrument, also designed by Mr. F. Galton, measures the interval between a Signal and the Response to it, by the space traversed by an oscillating pendulum when measured along a chord. The pendulum is always released at the same angle of 18° from the vertical, and the graduations are made on a chord of the arc through which it swings, situated at a vertical distance of 800 millimetres from the point of suspension. In this case, the length of the half-chord, or of $800 \times \tan 18^\circ$, is equal to 259.9 millimetres. The graduations show the space travelled across from the starting point, at the close of each hundredth of the time required to perform a single oscillation. The places for the alternate graduations are given in the subjoined table, which has been calculated for the purpose, and may be useful in other ways, but the times to which the entries there refer are counted from the vertical position of the pendulum, and are reckoned up to — 50 on the one side, and to $\times 50$ on the other. The value of the decimal is only approximate; it had, in many cases, to be obtained by graphical interpolation. The pendulum is made to beat seconds, so the graduations are for hundredths of a second.

A pendulum must have considerable inertia in order to keep good time; on the other hand it is impossible to give a sudden check to the motion of a body that has considerable inertia without a serious jar. Therefore it is not the pendulum that has to be suddenly checked in this apparatus, but a thread that is stretched parallel to it, by an elastic band both above and below. As the pendulum oscillates the thread swings with it, and the thread passes between a pair of light bars that lie just below the graduated chord and are parallel to it. On pressing a key these bars revolve

round an axis common to both, through a little more than a quarter of a circle. They thus nip the thread and hold it tight, while no jar is communicated to the pendulum. The signal either for sight or for sound is mechanically effected by the detent at the moment when it is pushed down to release the pendulum. The pendulum may also be released, without giving any signal. In this case a sight signal has afterwards to be produced by causing the pendulum in its course to brush against and slightly to turn a very light and small mirror, so as to throw on or off the reflection of a window. A sound signal is similarly made by causing the pendulum to carry a light weight against a hollow box, which strikes the weight off. Neither of these acts produce any sensible alteration in the swing of a heavy pendulum.

TABLE.

T=the time of a single oscillation. Angle of oscillation 18° on either side of the vertical. The distances are measured upon a chord that lies 800 millimetres vertically below the point of suspension. The decimals are only approximately correct.

$\frac{T}{100}$	Distances from vertical.	$\frac{T}{100}$	Distances from vertical.	$\frac{T}{100}$	Distances from vertical.
0	0	20	148.5	40	246.4
2	15.7	22	161.5	42	251.2
4	31.3	24	174.0	44	255.1
6	46.8	26	185.9	46	257.9
8	62.2	28	197.0	48	259.5
10	77.6	30	207.4	50	259.9
12	92.3	32	216.2		
14	107.0	34	224.8		
16	121.5	36	232.7		
18	135.2	38	239.8		

The following Paper was read by the Author:—

The EARLY RACES of WESTERN ASIA.

By MAJOR C. R. CONDER, R.E.

[WITH PLATE I.]

THE subject of the present paper is one of growing importance, although in consequence of its difficulty it has not till lately attracted general attention. Wherever in Western Asia the student of Aryan and of Semitic history has carried back his inquiry to the earliest period, he has found himself confronted by populations speaking languages neither Aryan nor Semitic. In three cases these languages are known to belong to the family of the agglutinative tongues of Central Asia, to which the term Turanian is most commonly applied, including the Turkic dialects, the Mongolian language, the various Finnic tongues, and, as recent researches show, the language of the ruling Tatar race in China.

The question which is now raised concerns the affiliation of other dialects in Asia Minor, Syria and Greece to the same stock; and I may, perhaps, be permitted to say that this is a subject which I have studied in considerable detail for the last seven years; only very gradually arriving at conclusions based on much preliminary labour. It is a question of very general interest, for on the one hand it throws much light on early Greek and Roman history, and on the other it enables us better to understand the earlier part of the Old Testament, and the attitude of the Hebrews towards the Canaanite population of Palestine. But in order to work from the old to the new, and from the generally accepted to that which is still matter of discussion among scholars, a few words are necessary concerning the three languages above noticed as being Turanian. These are the Akkadian, the Medic, and the Etruscan; and for the present purpose it is not necessary to discuss the cognate dialects called Susian, Sumerian, and Cassite, concerning which we have only the most fragmentary information.

The Akkadian is the most ancient agglutinative language of which we know anything, and since its discovery forty years ago, by Sir Henry Rawlinson, it has been studied by many well-known scholars. During the year 1888 an excellent grammar has been published by Mr. G. Bertin. The vocabulary, though in part doubtful, has to a certain extent been fixed by bilingual texts and lists; the comparative study of the grammar, by Oppert, Lenormant, and others, leads to the usual classing of it as primitive tongue as Turanian, the only question in dispute being whether the Finnic, Ugrian, or Turkic languages present a closest comparison. The comparison of the numerals seems

to me to confirm the recent conclusion of Dr. Hommel, and it appears that while comparable with Finnic and Ugric speech, Akkadian is even closer on the whole to the Turkic. Take, for instance, the Akkadian *Dimmir* or *Dingir* "god," or *Tin* "life" —the words are evidently nearer to the Turkic *Tangri* and *Tin* than they are to the Finnic *Yumala* and *Leine*; and so in many other cases. As regards grammar, the Manchu Tatar is in some respects nearer than any Finnic grammar to the earliest specimens of Akkadian, and on the whole the Turkic grammar, perhaps, presents most affinity, though like all other languages the Turkic has developed and advanced.

Akkadian is thought to have become extinct by about 1500 B.C., though the evidence seems to me only to show that it was little understood at that time by Assyrian writers, who regarded the language, however, with reverence and interest. It is through their translation of magical documents and hymns, that the Akkadian first became known to modern scholars; but even now it cannot be said that we have more than a very imperfect knowledge of the language, and it is impossible for even a specialist to dogmatise on the subject. According to Prof. Sayce's vocabulary, there are less than 100 certainly known words out of some 1,500 sounds.

The Turanian language of Media, known through the trilingual inscriptions of Darius at Behistun, first read by Norris, and deeply studied by Dr. Oppert, is stated by the latter great authority to approach most closely to the Turkic group. We as yet only possess about 200 words of this tongue; but as these are written syllabically, there is less doubt about their pronunciation than is sometimes the case in Akkadian. The Medic language is not the same as the Akkadian, though in syntax and in vocabulary it presents a very marked connection. Considering the difference of some 2,000 years in date, and 400 miles in distance, there can be no real doubt that the two languages are of the same stock, and probably belonged to the same original race. I am aware that I may be reminded that race and language are not synonymous, but such a distinction, when exaggerated, appears as likely to mislead as does the contrary assumption.

The third language above mentioned is the Etruscan, which, since Dr. Taylor in 1874 laid the basis of a scientific study, has generally been regarded as Turanian. In vocabulary it compares with the Finnic, Ugrian, and Turkic languages; and I find that out of some 250 known words, a large proportion are comparable with the Akkadian.

The question which it is now proposed to raise, is whether or no the early languages of Syria, and of Asia Minor, which are

MAJOR CONDER. — *The Early Races of*

traceable in the intervening regions between Mesopotamia and Italy, are not properly to be examined on the supposition that — belong to the same group of early Turanian tongues, to which the three already noted are to be ascribed ; and whether — information concerning racial types, manners, and religion, does not serve to support the same conclusion. It is a very large subject, and the material available cannot be condensed into one short paper, or even into a pamphlet. I will, however, endeavour to put a few leading facts before you for consideration, treating first of Syria, and afterwards of Asia Minor.

For the last twenty years or more it has been known that, as early as 1600 B.C., at least, there were two races in Syria and Palestine known to the Egyptians. One of these was a Semitic race, speaking a language akin to Hebrew and Phœnician, and represented with Semitic features on the monuments. From their town-names, including many of the cities enumerated in the Book of Joshua, we learn that the Semitic nomenclature of Palestine is older than the Hebrew invasion under Joshua—a discovery which fully agrees with the statements of the Book of Genesis. It is not, however, with this Semitic population—the existence of which is proven beyond dispute—that we are now concerned, but with that other population, the contemporary existence of which, especially in the north between Damascus and Aleppo, is equally undoubted. The names of the towns conquered by Thothmes III, about 1600 B.C., in this region, are (as Chabas pointed out) not Semitic and not Aryan. When I found reason to suppose that they were probably Turkic, I made a comparison of the sounds with the Akkadian and with the Turkic languages, and the results appear to me to show beyond reasonable doubt, that these town-names are to be so interpreted. Several very distinctive Turko-Tatar words form often repeated elements of these names, among which I may mention as perhaps most clear: *Tami* for a “building,” *Su* for “water,” and *Tep* for a “hill.” In this respect, therefore, the Syria of 3,500 years ago differs little from the Syria of to-day, in the same mixed nomenclature, Arab and Turkoman, is recognisable in the geographical names.

It is not on this list alone, however, that we need rely ; for the personal names of seventeen chiefs of Northern Syria, mentioned in papyri of the time of Rameses II, tell the same tale. The chief tribe of non-Semitic race in Northern Syria was that the *Kheta* or *Khati*, which, by common consent, is identified with the Biblical Hittites. Their power extended from Aleppo Galilee, and in earlier times they appear to have extended their migrations to the very south of Palestine. We possess the names of seventeen of these Hittite chiefs—either personal or

else titles such as rulers received in Persia, in China and in other countries, distinctive of rank.

It was through observation of these personal names that I first became convinced of the Turanian origin of the race, and of its affinity to the Akkadian. The words *Tur*, *Sar*, *Nazi*, *Lul*, *Essebu*, *Lar*, and *Tarkon*, or *Tarka*, which occur as parts of the names of Hittite chiefs, are not at all unique words. *Tur*, *Sar*, and *Essebu* are words used in Akkadian for "chief" or "prince"; *Lul* is a word widely spread and used by the Hunns to mean "chief"; *Lar* is a familiar Etruscan word for chief; *Tarkon* is the Etruscan Tarquin, and survives in various Turkic dialects, and in the old Mongol (Buriat) *dargo*, as meaning the "chief of a tribe." These words and many others are clear evidence of the character of the Hittite population. *Nazi* is a Susian and Akkadian word which is spelt syllabically, and signifies a prince.

My comparisons have been carried from China to Etruria, and from Finland to Chaldea; from the earliest days, 3,000 B.C., down to the present day; and the net result is, that the Turko-Tatar languages serve best to explain both the geographical and the personal names of the Hittites.

In making these researches I have to thank Dr. Isaac Taylor for indicating the best sources of information, such as the Buriat vocabulary of Castren for Mongolian, and Böhrling's work on Yakut for the Turkic, in addition to the works of Donner and Vambery, and his own Etruscan researches.

In addition to these linguistic indications, which, as we shall see, are fortified by many other considerations concerning race, custom, and religion, we have monuments in Syria itself which present a system of hieroglyphics distinct from, though akin to, the other known systems of antiquity. That these inscriptions are written in an agglutinative language I propose to assume, because it is not now disputed by any scholar who has given careful attention to the subject.¹ That this language belongs to the same group with the Medic and Akkadian seems to me, in the first place, indicated by what has just been said as to the nomenclature of the Kheta, who inhabited the country where these texts are found; and secondly, by the recovery of the sounds belonging to many of the emblems.

The recovery of the sounds was due to an observation by

¹ Professor Sayce admits the Hittite language to have been agglutinative. For this reason it seems to me unsafe to compare it with the Vannic language which was inflexional, and as Professor Sayce now calls the Hittites "Mongols," there is no evident objection to the supposition that this language was Mongolian also.

Professor Sayce. He pointed out in 1876 that the old syllabary used by the Greeks of Asia Minor and of Cyprus, stood to the so-called Hittite hieroglyphics in the same relation as that of the hieratic to the hieroglyphic in Egypt. Here then, in the early Greek inscriptions, we possess sounds which in Greek are sounds only, but which in the original language of the Syrian hieroglyphics may, I think, have been monosyllabic words, having a meaning which was quite lost when the signs were applied, simply as emblems of syllables, to another language—a process which we know to have occurred in other cases.

To Professor Sayce we also owe the recovery of a short bilingual well known as the "Boss of Tarkondemos"; and in 1887 I found that the so-called Hittite emblems on this boss could by aid of the syllabic sounds, be read as Akkadian. I thus obtained the words *Ma*, "country," *Ku*, "king," and *Me*, "many," applying the first to an emblem for country, the second to a royal tiara, the third to a series of strokes, such as stand for plurals in other systems. The picture value of the two first emblems was pointed out by Professor Sayce.

That *Ma* is Akkadian for country, *Ku* for king, and *Me* for the plural, I am assured to be correct by four of the best special scholars in Akkadian; but on their opinion alone I do not rest, because the same may be proved by consulting the living Ugrie and Turkic languages. In Manchu Tatar we still have *Chu*, for a lord, as well as in other languages of the Mongolian group. The bilingual appears to me—as far as it goes—strongly to support the contention as to the general type of the language.

From this discovery I proceeded to investigate all those commonly recurring emblems of which the sound is recoverable, and of which the meaning and usual position in the texts are indicated by a careful comparison. I have thus, I believe, been able to fix the pronouns and case suffixes, and to determine some of the commoner verbs, and in every case I find the Akkadian and Medic to furnish the most reliable key, although the living languages may be called in to control the results of Cuneiform study. The case is thus rendered so strong that it cannot, I think, be undermined even by such errors of detail as I may have made; and my conclusions have been confirmed by the study of Mr. Bertin's valuable grammars published since my discovery; while the vocables have been overhauled for me through his kindness, and that of Mr. Pinches of the British Museum, one of our safest Akkadian specialists.

Turning from the question of language to that of racial types, it is, perhaps, sufficient to say that the authentic portraits of the Nubians on Egyptian monuments show a Mongolian type very near to that of the Turkic and Mongol tribes of Central Asia.

in our own times ; and that the hair is in many cases dressed in a pigtail like that of the Tatars, -which was imposed on the Chinese at the time of the Tatar conquest. The general absence of beard is also an indication of importance, plainly indicating a Turanian type. The high tiara and the shoe with curled toe (like the Etruscan *Tutulus* and *Calceus Repandus*) are both details of costume surviving to a late historic period in Italy among the early tribes, and in Western Asia among Turanians. Another detail of interest is the sort of axe or hammer held by some of the Cappadocian deities, and also by Sethluns in Etruria, and frequently by Charun, the Etruscan and Sardinian god of Hades. On coins of the Carian kings and towns in the 4th century B.C., the same instrument is held by a male figure. It also occurs on coins of Tarsus and Mylassa, and is sculptured at the latter Carian town on a door lintel. In Turkestan the *Ai Baltu*, or "hammer of honour," was a mark of dignity down to the present century.

We know something of the religion of the Kheta from their invocation of the gods in their treaty with Rameses II. They adored the sun and moon, the mountains, rivers, clouds, and the sea. This animistic belief is common to all the tribes of Central Asia. Their gods are heaven and earth, the sacred mountain, the sacred river, the wind, the fire, and, among shore-side tribes, the sea also. The Akkadians had similar gods, including the "spirit of heaven" and the "spirit of earth." The Turanians do not appear to have adored the planets, which were so important in the pantheon of the Semitic peoples.

The civilisation of the Kheta was far advanced. They had walled towns, chased metal work, chariots and horses, skilled artificers. They could carve in stone, and could write in hieroglyphic character. All this wonderful cultivation they possessed while Israel as yet was hardly a nation, and the Bible account of the Canaan overrun by Joshua is fully confirmed by monumental evidence.

One other indication of custom may finally be noted as tending in the same direction. The Kheta married outside their own tribe—at least in some cases. Thus in the Bible Esau and Solomon had Hittite wives, and in Egyptian history a Hittite Princess wedded Rameses II. This custom is not distinctively Aryan. The Aryans married within the limits of the tribe (or as archæologists say they were endogamous not exogamous) preferring their relatives to strangers ; and down to the present time this custom holds among the Iranians of the Caucasus. Turanian social ideas have always apparently differed very much from those of Aryans or Semites ; since exogamy, polyandry and the tracing of descent from the mother are widely

spread customs among them even as far east as China. Many are the Turanian tribes ruled by women, or among whom women have great authority. The Salique law was not a Turanian idea.

If then from the preceding considerations it be concluded that the non-Semitic race in Syria was Turanian, and akin to the Turkic and Mongol stocks, and thus to the Medes and Akkadians further east, it becomes legitimate to compare the name of the Kheta with that of the great nation of the Khitai in Central Asia. The historic home of that people appears to have been in the high and healthy region of Kashgar, one of the most fertile portions of Turkestan, well watered, well pastured, the fit cradle of an energetic people. Where the Khitai first came from is matter of doubt. The tribe in question is distinguished as "black" or "western" Khitai, because another tribe of Khitai or Kitans lived in northern Mongolia and near Lake Baikal, where perhaps they left their mark in the town Chita marked on modern maps. Chinese authors regard this as the original home, but these are late authorities compared with Ptolemy the celebrated geographer, who speaks of these Khitai as even then dwelling in the Kashgar region above noticed.

The Western or Kara Khitai were the predecessors of the Mongols, and in the 11th century, A.D., they spread over the whole of Turkestan and across the Oxus. It appears that the celebrated Prester John was a prince of this people, and they only disappear from history when their power was broken by Chinghiz Khan and his Mongols. It is from these Khitai that the well-known mediæval name of Cathay is derived, for they conquered northern China and ruled the Mongols and the Manchus. They were bowmen and charioteers, they owned fields and built houses and planted mulberries. They had a mythology as fanciful and poetic as that of the Aryans, they wore armour and were acquainted with gold. They revered a sacred throne and carried with them a tent-temple, or tabernacle, in their wars. A few survivors bearing the name still exist, it is said, south of the Chu river. The language of the Khitai as investigated by Mr. Howorth is akin to Mongolian and to the Turkic dialects; and I may note that words are found in this language which also occur in Akkadian, and which in some cases occur also in the Kheta geographical names already mentioned.

In many other respects these Khitai resembled the Kheta of Syria. They had horses and chariots. They were skilful draughtsmen, and brought with them to China a written character of their own. They adored the spirit of heaven and spirit of earth, the sacred mountain and other atmospheric

divinities. It may be said that it is a far cry from Syria to Kashgar; but distance is nothing to the Mongol. Age after age the Turanians of Central Asia have poured forth as Scythians, Hunns, Ugurs, Khitai or Mongols, penetrating to the shores of the Mediterranean and reaching Europe through Russia and Hungary. It is not possible to say, in the early times of which we are speaking, whether the migration had its centre in Turkestan or near the Caspian; but there appears to me to be no scientific objection to an identification of the Kheta, and the Khitai, since both are independently known to be a Tatar people.

Leaving for the present the history of the Kheta of Syria we may now turn our attention to Asia Minor. Here we find no traces of the name Hittite at all; nor does any ancient writer speak of a Hittite Empire or of a Hittite population in this region. On the other hand we have direct—though fragmentary—information from the monuments, which proves to us that a civilisation similar to, or identical with, that of the Kheta, existed in Cappadocia, in Caria and in Lydia, at a period quite as early as that already considered. Few as are the indications, they all point in one direction, and serve to give the connecting link between the Medes and Akkadians on the east, the Kheta on the south, and the Etruscans on the west. Professor Sayce has pointed out that the personal names of the Kings of the Gamgams, and of other tribes further west in Asia Minor, are to be compared with the Kheta personal names.¹ These facts, therefore, all agree with what has been already said of the Kheta language.

It is, perhaps, to this non-Aryan population in Asia Minor that Herodotus applies the name barbarian; and with them he groups the Pelasgi in Greece. The general consensus of ancient authority also derives the Etruscans from Asia Minor as relations of the Lydians. We have seen that the Etruscan language is Turanian, and this race was known to the Greeks as Tyrrhenians. There is no reason therefore to doubt that in Lydia a people of Ugriic affinities must have very early existed.

A few words of the Lydian and Carian languages have also been preserved for us by classic writers; and although such

¹ Professor Sayce's lists include Vannic and Persian names as well as those resembling the Hittite, and these must be carefully sifted since the populations were certainly very mixed. Such names as Argestis (at Van), Kundaspi (in Komagene) and Kustaspi (or Hystaspes) seem to be Aryan, and the names of Vannic Kings generally might be so explained. The distinctive Hittite names for kings do not occur in Vannic, but among the Gamgams, the Cilicians, and some kings of Milid.

information is not of the most authentic, since it is very late and since copyists' errors may have crept into the unfamiliar sounds, yet in several cases these words seem clearly to be of Turkic character. Thus in Carian we have *Kôs* for sheep, which recalls the Turkish *Kozi*, "a lamb," which occurs also in Buriat for ram; and *Taba* for a rock recalling the widely used Turkic *Tapa*, *Taba* or *Tepe* for a hill top, and the Zirianian *Tup* meaning "a ridge." In the later Lydian many words seem to be Aryan, but others are Turanian. Thus *Larilas* for a "tyrant" is I think to be compared with the Hittite *Lel*, the Akkadian *Lil* or *Lala*, the Hunnic *Luli* for "Chief," and so in other cases which there is no reason here to detail.

Another indication which connects the Kheta very strongly with Lydia and Caria, is the existence in those regions of the syllabary which has been found to be derived from the old Kheta hieroglyphics. Nor is it only the syllabary which survives, for hieroglyphic texts accompanying rock-hewn figures have been found on the southern and western shores of Asia Minor, which without doubt belong to the same system with that of the Kheta. The great rock sculptures of Pteria in Cappadocia, are of the same character, and are accompanied by the same kind of hieroglyphics. Thus then there is no doubt that a race and a civilisation similar to that of northern Syria existed in early times from Armenia to the Bosphorus.

Sir Charles Wilson has added several new monuments to our list, and more remain to be found. Nor is it at all improbable that, on the frontiers of Assyria, bilinguals may yet be recovered which will serve clearly to elucidate the language of the so-called Hittite monuments.

There is also to be found in Asia Minor a class of antiquities which serves to connect this early civilisation with that of Babylonia; namely, the seal cylinders which have been recovered in Lydia and Cappadocia, and which in general character recall those discovered in Mesopotamia. These little cylinders in hard stone, engraved with mythological subjects, and in some cases having hieroglyphic emblems like those of the Hittite texts, are believed to have been worn as amulets. They differ only from the early Akkadian cylinders in the character employed in writing, since they have no cuneiform symbols. I have collected representations of twelve of these cylinders, which when rolled on plaster of Paris produce beautifully sharp impressions in relief. Mr. Greville Chester has lately discovered in Asia Minor several more of the same type, as well as two valuable seals, one of which has a much worn Hittite inscription. From these cylinders we obtain a very fair idea of the of the race; for it will not, I suppose, be doubted that

winged warriors, bull-headed men, hawk-headed cherubs, and other such figures are intended to represent gods and genii. In some cases these figures stand erect on various animals, such as the deer, the horse, the lion, the rabbit. In other cases, the winged sun occurs as in Assyria. The goddesses of these cylinders are two, one having the lion, the other the dove for her emblem, clearly representing Nana, the mother goddess, and Istar, the Turanian Venus, to whom these emblems are attributed in many parts of Asia. The representation of gods erect on animals is not peculiar to these cylinders or to the Cappadocian bas-reliefs, or to the coins of Asia Minor. At Bavian, two Assyrian gods are so represented, and at Malthai, 75 miles north of Mosul, the seven great gods appear standing on the lion, the dog, the horse, the winged bull, the deer, &c. The same symbolism is not unknown in Egypt, and the Indian gods stand each on its peculiar animal or *vehan*. In Phœnicia a similar art is found only distinguishable by the alphabetic lettering of the seals and cylinders. It should be noted that the deer, the ass, the horse, and the bull, are sacred animals of the Turanians sacrificed to the gods. Thus the Khitai above noticed, sacrificed deer, oxen, and horses, while the "horse chief" and "bull chief" are well-known Chinese deities. I believe it to be possible to work out the Asia Minor pantheon, and to identify almost every deity with one of those adored by the Akkadians, which as we know from Akkadian litanies included sun, moon, wind, water, fire, and the goddesses of light and of the earth.

The scattered notes found in ancient writers give us occasionally an additional indication pointing in the same direction. Thus we know that the Tibareni of Pontus practised the curious custom of the *couvade*, according to which it became the duty of the father of a new-born child to take to his bed and attend to the infant, while the mother went about her house work and attended to their wants. This is a very widely spread custom in many parts of the world, but, as far as I know, was never practised by either Aryans or Semitic peoples. Marco Polo mentions it in China, and Chinese writers speak of it as peculiar to some of the aborigines of the country. It also is known among the Basques in the south-west corner of France, and these people are of Turanian origin. In Asia the *couvade* appears to distinguish the Tatar or Mongol peoples, and its discovery among the Tibareni agrees, therefore, with all our other evidence.

The great Philistine race in southern Syria was in all probability of the same stock though mingled with a Semitic people. The head-dress of the Philistines, according to Egyptian pictures, is similar to that of the Teukrians, and their beardless

faces appear to be non-Semitic. There are many town and personal names in Philistia, mentioned in the Bible, which seem to be non-Semitic, and have never been translated in Hebrew. Hitzig believed the Philistines to be Pelasgi, and the Bible classes them with certain Egyptian tribes. It is not possible here to diverge to the question of the Turanians in Egypt, but their early existence there is becoming pretty generally recognised. The Philistines were an uncircumcised people, and circumcision is not a Turanian custom. Schrader expresses the opinion that the name of the Philistine god, Dagon, known in Babylonia as Dakan, is not Semitic, but is to be referred to an Akkadian etymological origin. In this connection, it is interesting to note that even in the eighth century, B.C., the Philistine city of Ashdod is mentioned as a city of the Hittites in an inscription of Sargon. This fact which agrees with the Bible account of Hittites in the south of Palestine, and with the survival of the Hittite name in the modern villages, Hatta and Kefr Hatta in Philistia, is a monumental rebuke to those prejudiced persons who have striven to show a discord which does not exist between the Biblical and the monumental accounts of the sons of Heth. One interesting particular I would note in speaking of this branch of the Syrian Turanians, namely, the objection which the Philistine priests had to treading on a threshold. The objection still holds among Syrian Moslems, whatever be its origin, but among the Mongols this became a very important superstition. The ambassadors sent to Mangu Khan were carefully instructed, as we learn from various writers of the 13th century, not to tread on the threshold; guards were set to prevent the occurrence, and one unfortunate European lost his audience and was stripped of his clothes because he stumbled on the threshold as he went in. Thus the old Philistine superstition of "hopping over the threshold" connects them with Turanian races of the East.

In suggesting the existence in Lydia and Caria of an early Turanian population akin to the Medes on the east, and to the Etruscans on the west, I do not, of course, ignore the fact that there were other elements of population in Asia Minor. We know of Phœnician and of Early Greek colonies. In Lycia we have a short text in Greek and Phœnician, and we have inscriptions, in some cases bilingual in Greek and in a language akin to the early Persian of the monuments and to *Vand.*¹ It is a question to a great extent of date, since the rude

¹ The study of Phrygian (see Appendix) shows that early Aryan languages existed in Asia Minor, besides Greek and Persian. It appears to me that not only Phrygian monumental texts at the tomb of Midas, but probably also the recently found texts of Lemnos, and the so-called "Carian" graffiti in Egypt,

sculptures and hieroglyphics which we are considering, are older than the 14th century, B.C., whereas the Lycian texts just mentioned, date about 500 B.C., and the population a thousand years earlier may have been of different character, considering the incursions of Cimmerians, Phrygians, Assyrians, Persians, and Greeks. But Herodotus tells us that before the rise of the Persians, the-Medic power marched with Lydia, the Halys being the border, and I would suggest that just as in the inscriptions of Darius, a Turanian and an Aryan language stand side by side, so in Asia Minor an early Turanian race existed side by side with more than one Aryan stock, and sent forth to Italy the Turanian Etruscans whom all the ancients regarded as of Lydian origin.

There is a question which should be here mentioned, in order to make our inquiry more complete, although the result is mainly negative. Lenormant proposed to avail himself of the Caucasian languages in studying the old texts of Lake Van, which Prof. Sayce has deciphered, that is to say, of the small group of so-called Lesghic languages, belonging to the peoples on the slopes of the Caucasus—the best known literary example of which is the modern Georgian. But in order to judge how far this modern language may be of assistance, it is evidently first necessary to ask what Georgian is. The literature of this language is not traceable earlier than Byzantine times at most, so that more than 2,500 years elapse between the times of which we are treating, and the earliest known examples of the Georgian language. In personal appearance the Georgians (of whom I have seen many on pilgrimage to Jerusalem) are a Turanian people, with some mixture probably of other blood—Aryan, and perhaps even Semitic. The Georgian grammar compares with Turanian (as indicated by the absence of gender, the position of the plural, the use of suffixes, and the syntax), but like Turkish the language has advanced much further than those of Central Asia; and it has attained to a rudely inflexional condition. It is also comparable in many respects (especially in the case of endings of the nouns) to the old Persian of the Behistun texts. It is found that even in the earliest known Georgian books, a large proportion of the words are of Aryan origin. They appear to have existed early in the language, and are akin to words of the Iranian languages, and in some cases occur in Armenian. At the same time the commonest words in the language, such

together with early texts in Italy, belong to such dialects of early Aryans. Independent study has also led me to believe that the language of the Vannic inscriptions (which Dr. Mordtmann compared with Armenian) is a very early Aryan language, akin to the Phrygian on one side, and to the monumental Persian on the other, and comparable with Zend, and with Armenian.

as "father," "son," "morning," "city," "man," "god," with common verbs such as "burn," "bend," "rub," "take," "think," "slay," "drink," "present," and "go," are plainly connected with the Mongolian and Tatar languages, and have often undergone only very slight changes.

Georgian then is a mixed language, a modern language, and one to use which without careful sifting would be as unscientific as it would be to rely on modern Turkish, with its enormous foreign vocabulary and its advanced grammar. When Georgian is sifted the result apparently brings us round to the same study previously followed at greater advantage, through the purer dialects of Central Asia, and the ancient languages of Media and Chaldea.

The Caucasus, indeed, is a rubbish heap of mixed languages and broken tribes. To it have fled those weak or defeated peoples whom more vigorous races drove from the plains; nearly 1,500 years ago there was a great independent Jewish kingdom in the Caucasus, mingled with a Turkic population and with Aryan tribes. Turkic, Iranian, and Semitic peoples still form its mixed population, and the Lesghic dialects have, no doubt, been materially influenced by this mixture of race. It is generally recognised that the early homes of powerful races are found in the rich plains, beside the great rivers whose courses their migrations so often follow. A rugged region like the Caucasus is the refuge of dying tribes, not the cradle whence they issue victorious.

The preceding notes have, perhaps, indicated that the question of the nationality of the early non-Aryans in Syria and Asia Minor has been examined on a broad basis. Of all the North Turanian languages—Chinese, Mongolian, or Finnic—the Turkic languages of the region between China and the Caspian appear to throw most light on the subject. The Lesghic dialects are too modern, and too much subject to a variety of foreign influences, to be of great value; and their study has not been found to lead to any appreciable result. Thus no scholar has succeeded through Georgian in interpreting any Hittite noun or verb, and the Georgian words for "king" and "country" do not agree with the probable sounds on the short bilingual. As, in fact, Georgian has been tried and has failed, whereas Akkadian and the Turkic dialects may be tried with important results, I think that this aspect of the question has not been neglected. Georgian, as we have seen, would be as dangerous a guide to the student of the older languages, as would be the Armenian or the Osmanli-Turkish.

Before quitting the question of the Hittite monuments, I will say one or two words as to their decipherment. In the

first place, whether Georgian or Akkadian be the true comparison (for we may, I think, lay aside all Aryan and Semitic inflexional languages as impossible of application) it is equally clear that the syntax of the texts will place the verb at the end of the phrase. Misled by the familiar Egyptian syntax, and by comparison of a Hittite noun sign with an Egyptian verb sign, almost every student of these texts has supposed them to begin with the verb. The consequence has naturally been that their attempts to identify the particles have been vitiated by this error in syntax, natural as such an error may have been.

As regards the subject of the texts it is a pure assumption that they are historic. Some, indeed, have long been recognised as probably votive. Historical texts in Asia belong to a late period, as compared with the ancient religious, magical, and votive inscriptions of the Akkadians, Etruscans and others. In Egypt, history bears a small proportion to ritual mythology and prayer; and so, generally speaking, in the ancient world, spells and invocations, records of gifts to temples, long hymns in praise of the gods, precede the era of annals and historic records.

To sum up our enquiry. We have seen that monumental traces exist in Mesopotamia, in Media, in Asia Minor, and in Syria, of a great Turanian stock more closely akin to the Turkic and the Ugrian than to any other. We have seen that wherever the old centre of civilisation may have been, whether on the south side of the Caspian as many now suppose, or in Central Asia as used to be believed, the fact remains that the Tatars from Turkestan are of the same stock with the Kheta, the Lydians, Carians, and Cappadocians, and with the Etruscans or Tyrrhenians of Italy. It is but an earlier edition which we are considering of that great advance which in the 13th century A.D. brought the Mongols to the Mediterranean and to Hungary.

Far away to the west, in the Pyrenees, the remnant of the old Iberian stock—of the same Asiatic origin—remains among the Basques. It is traced in the Tyrol and among the north Italians, as well as among Sabines and Tuscans. In Egypt the same people early found a place. Wherever they went they erected great cities of unsquared stone, and brought with them the arts of painting, of writing, of metal work in gold, silver, and bronze. It is on this basis that Chinese civilisation has arisen, and far from being barbarians, the Turanians were the first civilisers of Western Asia, and the first to spread the arts and sciences of the old world along the southern coast of Europe. Forgotten for a time, while Aryans and Semites absorbed our attention, they now begin to claim their rightful place in the history of human civilisation originating in Asia.

One Hundred Hittite Words,

Compared with Akkadian, Medic, Susian, and Etruscan, and with Turkic and Mongol words of archaic living languages.

- A, "water," Akkadian, *a*; Susian, *a*; Yakut, *u*; Wogul, *ia*, "water."
- A, participial suffix, Akkadian, *a*; Yakut, *a*, participial suffix, and *ä*, "to be."
- AB, "house," "abode," Akkadian, *ab*; Osmanli, *او*, *ev*; Altaic *eb*, *ev*; Chagataish, *oba*, *ova*, "house."
- AI, Akkadian, *E*; Medic, *E*; Susian, *Ua*; Chagataish, *oy*, "house."
- AKA, "chief," Akkadian, *Aga*; Osmanli, *آغا*, *آغا*; Yakut, *ichchi*; Chagat, *ege*; Uigur, *ige*, "lord"; Yakut, *agha*, "father," *asa*, "grandfather."
- AKER, Etruscan, *ager*, "field"; Chagataish, *kir*; Lapp, *aker*, "field," (also an Aryan word).
- AMAR, Akkadian, *Amar*, "circle"; Uigur, *evirmek*, "to make round."
- AN, "god," Akkadian, *an*; Medic, *an*; Etruscan, *an*, *un*; Susian *an*; Osmanli, *ان* "holy."
- AR, IR, "man," Akkadian, *eri*, *ur*; Buriat, *ere*; Yakut, *är*; Osmanli, *ا* *er*; Medic, *Ruh*. Common to all Tartar dialects with the sense "strong," "male."
- ARI, "river," Akkadian, *aria* (Lenormant); Osmanli, *ایرمک* Yakut, *ürüya*, "stream"; Hungarian, *ar*, "stream"; Basque, *ura*, "water"; Yakut, *örüs*, "river."
- ARN, "ravine," Chagataish, *arna*, "cleft."
- ATA, "chief," "father," Akkadian, *adda*, *ad*, "father"; Medic, *ati*, *atu*; Osmanli, *اتا*; Chagataish, *ata*; Uigur, *ata*; Yakut, *ese*; Buriat, *esega*; Kirghiz, *ada*, "father."
- ATR, court, Etruscan, *Atrium*; Tschuwash, *odar*, "sheep fold."
- AUN, Akkadian, *un unu*, "city"; Etruscan, *on*; Tcherkess, *unneh*, "house."
- AUL, Khitan, *wolutu*, "camp"; Osmanli, *آولو*, "courtyard"; Teheremiss, *ola*, "town"; Etruscan, *vol*, "town."
- BEK Bog, Uigur, *bekük*, "fortress"; Malamir, *bukti*, "shrine" ? Buriat, *boko*; Yakut, *bogho*, "strong."
- Bu, Akkadian, *pu*, "pool."
- ENU, "lord," Akkadian, *enu unu*; Manchu, *wang*, "prince"; Chagataish, *inak*, "prince."
- EN or NI, "saying," "prayer," Akkadian, *En*, "prayer"; Medic, *na*, "say"; Yakut, *uñ*, "ask"; Buriat, *anir*, "voice"; Uigur, *on*, "call"; Altaic, *ün*; Chagataish, *ön*, "sound"; Osmanli, *ön*, "voice."

ESSEBU, "chief," Akkadian, *Esebu*, "prince."

GA, "oh," vocative prefix, Akkadian, *ga*; Yakut, *cha*, interjection.

GA, adjective affix, Akkadian, *ga*, adjective affix; Medic, *iki*; Susian, *ak*.

GU, "word" "say," Akkadian, *gu*; Buriat, *uge*; Yakut, *ös*; Chagataish, *chau*; Uigur, *chau*, "call," "speech," "word"; Buriat, *goi*, "say," "ask."

INIEL, p.n. c.f. Uigur, *yeñil*, "conquest."

KA, "for," "to," Akkadian, *ku*; Medic, *ikki*, "to"; Susian, *iki ka*, "with"; Turkish dative, *ka*; Buriat ablative, *aha*; Yakut, *gha*, dative.

KAL GAL, "great," Akkadian, *gal*; Susian, *khal*; Buriat, *kolo* "wide"; Yakut, *khan*, "great," *khaliñ*, "thick"; Chagataish, *kalin*, "great"; Kirghiz, *kalen*, "thick"; Osmanli, *قالين*, "big," "thick."

KAN, GAN, "enclosure," Akkadian, *gan*, "enclosure"; Manchu, *yuan*, "garden"; Yakut, *khonu*, "field."

KAR, "fortress," Akkadian, *kar*; Mongol, *hur*, "enclosure"; Buriat, *ger*, "house"; Alt, *kor*, "to fortify," *korum*, "fortress."

KEB, Akkadian, *gubbu*, "heap"; Chagataish, *köb*, "heap"; Buriat, *gubi*, "mountain"; Wotiak, *cappa*, "a grave hill"; Hungarian, *kup*, "to heap up."

KAN, "this," Akkadian, *gan*, "this"; Etruscan, *ken*, "this"—a prefix; Buriat, *ken*, "who"; Yakut, *khan*, "who."

KHAL, "city," Medic, Susian, Malamir, *khal*; Akkadian, *kal*, "fortress."

KHAT (KHETA, adjective), Hittite, c.f. *Khitai* (tribe). In Mongol and Yakut the name is applied to the Chinese.

KETI, "with," Akkadian, *kit*, "with"; Medic, *kutta*, "also"; Yakut, *kitta*, "with."

KU, "king," Akkadian, *uk* and *ku*; Susian *ku* "king"; Manchu, *chu*, "lord"; Cantonese, *chue*; c.f. Akkadian, *uk*, "great"; Buriat, *ike*, "great"; Yakut, *koyu*, "thick," *uigu*, "broad," *us*, "master," *usa*, "high," see AKA. Chagataish, *okti*, "honour"; Uigur, *ükis*, "high"; Akkadian, *ku*, "high."

KUR, mountain, Akkadian, *kur*; Medic, *kurkha*; Lapp, *kor*; Teheremiss, *korok*.

LAB, Akkadian, *lab*, "brave"; Azerbaizan, *lab*, "brave, strong good"; Buriat, *lab*, "good"; Osmanli, *الب*, "brave."

LI LU, adjective affix, Akkadian, *li* (Lenormant), adjectival affix; Hungarian *ul*; Osmanli, *لي* *لي* adjectival affix for adjectives of possession; Yakut, *li*, adverbial affix.

LU, "yoke," Akkadian, *lu*, "yoke"; Chagataish, *olmek*, "to bind"; Uigur, *ilmek*; Yakut, *il*, "to join," or "tie."

LUL, LEL, chief, Akkadian, *lala*, *lul*, *lil*, "ruler"; Hunnic, *luli*, "chief"; Altaic, *ulula*, "to become great."

MAN, "chief," Akkadian, *man*, "king"; Yakut, *maña*, "great"; Kirghiz, *manap*, "leader," "elder."

MAJOR CONDER.—*The Early Races of*

- MAS, Akkadian, *mash*, "warrior."
 ME, country, Akkadian, *ma*, "land"; Medic, *ma*, locative; Susian, *ma*, "in"; Yakut, *mā*, "there"; Wogul, *ma*; Zirianian, *mu*; Finnish, *maa*, "earth," "land."
 ME, "to be," Akkadian, *ma*, "be"; Buriat, *ame*, "life."
 ME, plural affix, Akkadian, *me*; Susian, *me* (Sayce).
 MEKE, verbal affix, Turkic, *mek*; Medic, *meske*.
 METI, verbal affix, Akkadian, *meta*, "being"; Osmanli, *ع*, affix for names of actions.
 MO, "I," "me," Akkadian, *mu*; Medic, *u*; Susian, *ma*; Etruscan, *ma*; Samoyed, *me*; Buriat, *bi*; Yakut, *min*.
 MUR ? Akkadian, *murru*, "city."
 NAP, Akkadian, *nab annap*, "god"; Medic and Susian, *nap*; Samoyed, *nup*, "sun"; Hungarian, *nap*, "sun."
 NAPIRURI, Susian, *napiururi*, "divine."
 NAZI, "prince"; Susian, *nazi*, "prince."
 NE, "this," "he," Akkadian, *na*, "this," "he"; Susian, *ni*, "his."
 NE, "of," genitive affix, Akkadian, *na*; Medic, *na*; Susian, *na*; Osmanli *ن*, genitive; Buriat, *in*, "of."
 NEKE, "belonging to," Buriat, *nik*; Etruscan, *nak*; Hungarian, *nek*, "belonging to"; Ostiak, *nak*, "to."
 NELI (see LI), Etruscan, *nal*, personal affix.
 NO, or MU, negative. Akkadian *nu*, "not"; Medic, *inne*; Osmanli, *د*, "nor"; Manchu, *wu*; Cantonese, *mu*, "not."
 PAKHIAN, or BAKHIAN, proper name, Akkadian, *pakh*, "king"; Osmanli, *ك*, *bek*, "chief"; Kirghiz, *big*, "chief" (see BEK).
 PATUS, or BATUS, Akkadian, *patesi*, "ruler"; Uigur, *batiz*, "high," "mighty"; Georgian, *batu*, "prince."
 PAP, Osmanli *بابا*, "father"; Buriat, *babe*; Akkadian, *abba*.
 PEIS PIS, chief, Akkadian, *pis*, "hero"; Uigur, *bash*; Yakut, *bas*; Altaic, *pash*; Osmanli, *باشا*, "chief."
 PE, charm, Akkadian, *paa*; Chagataish, *bai*; Turkish, *böyu*; Yakut, *ab*, "charm"; Buriat, *bolo*, "to enchant"; Manchu, *fu-lu*.
 PIL, "hill," Etruscan, *fale*, "mountains"; Buriat, *boldek*; Samoyed, *filoi*, "high"; Ostiak, *pel*; Andi, *pil*, "hill."
 PU, "growth," Akkadian *pu*, "long"; Osmanli, *پوی*, "growth"; Chagataish, *boi*, "growth," *böi*, "grass"; Tchuwash, *pü*, "growth," "height."
 RA, "power"? See AR. Akkadian, *ra*, "enlarge."
 RA, ER, incorporated particle "to," Akkadian, *ra*; Buriat, *r*, "to"; Basque, *ra*, "towards"; Yakut, *ara*, "on the way"; Osmanli, *ا*, "between."
 RE, "flow," Akkadian, *raa*, "flow" (see AR).
 RI, Name of a deity, Akkadian, *Ri*, a goddess, *Ri*, "bright"; Chagataish, *örü*, "bright"; *örüng*, "light."

- SA, sickle; Abase, *sa*, sword; Tcherkess, *seh*, "knife."
 SE, Akkadian, *sa*, *se*, "give," "have"; Buriat, *as*, "give."
 SANG SUN, Medic, *sanu*, "powerful"; Osmanli, *صان*, "dignity."
 SAP? compare Medic, *sapi*, "obey," *sapir*, "decree."
 SAR, "chief," Akkadian, *Sar*; Turkic, *Tsar*, "chief."
 SI, "eye," Akkadian, *si*, "eye," "see"; Medic, *siya*, "see";
 Ostiak, *sai*, *sei*; Samoyed, *saeu*, "eye."
 SU, "river," Buriat, *oso*, "water"; Osmanli, *سو*, "stream,"
 "water"; Chagataish, *sun*; Tchuwash, *shu*; Kirghiz, *su*.
 SUKI, swamp, Akkadian, *suk*, "swamp"; Kirghiz, *sūk*, "flow-
 ing"; Buriat, *sokoi*, "bog."
 TA, "stick," "beat," Akkadian, *da*, "drive"; Manchu, *ta*, "beat";
 Cantonese, *ta*, "beat."
 TA, "height," Siberian, *taï tau*, "mountain"; Osmanli, *داغ*;
 Susian, *ta*, "great"; Medic, *ti*, "great."
 TAK DUK, c.f. Akkadian, *tak*, "stone"; Yakut, *tas*; Osmanli, *طاش*
 "stone."
 TAMA, "building," Akkadian, *tami*; Khitan, *tama*, "enclosure"
 Chagataish, *tam tim*, "building."
 TAR, chief, see TUR.
 TAR, valley? Chagataish, *tar*, "narrow"; Osmanli, *دره*, *dereh*,
 "valley."
 TARKA, "chief," Etruscan, *Tarchu*, *Tarchi* (Tarquin); Siberian,
Tarkhan; Buriat, *dargo*; Tschuwash, *torgan*; Uigur, *tar-*
khan, "chief."
 TARKA, deer, Akkadian, *darag*; Assyrian, *turakhu*, "antelope";
 c.f. Buriat, *turgun*, "swift."
 TASS, Akkadian, *tis*, "king," *tassak*, "hero"; c.f. Yakut, *tüs*,
 "firm," "solid."
 TI, "arrow," Yakut, *it*, "shoot"; Chagataish, *at*, "shoot."
 TI, a prefix, Etruscan, *eth*, prefix; Medic, *it*, prefix for locative.
 TI, suffix, Medic, *ta*; Akkadian, *da*; Etruscan, *th*, termination
 for abstract words; Buriat, comitative suffixes, *tui*, *tei*;
 Yakut, *ta*, accusative.
 TIKE, TIKÄ, Akkadian, *tik*, "all," or perhaps Uigur, *tek*, "like."
 TISA, Etruscan, *Thasa*, adverbial termination, but see Buriat,
tüsa, "against."
 TE, "growth," Akkadian, *ti*, "live"; Medic, *ta*; Buriat, *da*,
 "raise up"; Osmanli, *اتمک*, *it (mek)*, "to sprout."
 TEP, "hill," Altaic, *töbe*; Tchuwash, *tübe*; Mongol, *dobo*;
 Osmanli, *تپه*, *tepe*; Turkoman, *tapa*, and Etruscan, *tepæ*,
 "hill," "mound."
 TO, take or make? Akkadian, *tu*, "make."
 TUR, chief, Uigur, *töre*, "prince"; Akkadian, *tar* or *tur*;
 Osmanli, *دارا*, *dara*.
 TUR, camp, abode, Yakut, *tur*, "stay"; Akkadian, *tur*, "abode";

Samoyed, Siberian, and Mongol, *tura*, "tent"; Esthonian, *tare*, "abode."

ZAK, Akkadian, *zig*, "building," "high place."

ZAKAR, apparently *zigar*, "monument" (probably Semitic).

ZI or ZO, Akkadian, *zi*, "spirit"; Chagataish, *is*, "blow," "wind."

ZU or OS, pronoun? Akkadian, *zu*, "thou"; Mongol and Manchu, *si*, "thou." The sound of the Hittite sign is, however, doubtful; it may be *o* or *no*.

ZUNEKE? "thine" (see NEKE); Buriat, *sinike*, "thine."

ZI-AN, compare the Akkadian *zi-ana*, "spirit of heaven." *An-zi* also occurs on a Hittite text.

Asia Minor Words.

Mentioned by Greek Writers.

Carian—

KÖS, "sheep," Osmanli, *توزي*, *kozi*, "lamb"; Buriat, *kozi*, "ram"; Kirghiz, *kov*, "sheep"; Hungarian *kos*, "ram."

TABA, "rock," see Hittite *tep*.

GELA, "king," see Hittite *kal*; Chagataish, *kalga*, "lord."

SOUA, "tomb," Etruscan, *suth*.

GLOUS, "robber," Buriat, *kulu*, "steal."

ALA, "horse," Hungarian, *lo*; Turkic, *at*, "horse."

Lydian—

LAILAS, "tyrant," see the Hittite *lul*.

MÖUS, "the earth;" Esthonian, *meisa*; Hungarian, *mezö*, "land," "earth."

TARGANON, "branch," Esthonian, *tarkan*, "to sprout forth."

SAEDIN, "year;" Medic, *sarak*, "time"; Turkic and Mongol, *sal*, *sil*, "year."

TEGOUN, "robber"; Yakut, *tiokün*, "cheat," "thief."

Cilician—

ABAKLES, "high priest"; Buriat, *bo*, "priest," see Hittite *kal*.

TARKONDIMOTOS, a king's name, see Hittite *Tarka*.

The Asia Minor words are in some cases, however, of Aryan origin as is shown by the following:—

Phrygian—

BEKOS, "bread;" Persian *baj*, "food."

BAGAIOS, "God;" old Persian, *Baga*; Slav, *Boga*, "God."

KIMEROS, "chamber;" Armenian, *gama*, "vault"; Zend, *kamara*, "vault"; Greek, *kamara*; Latin and Italian, *camera*, "chamber."

Lydian—

ANKÓN, "corner;" Armenian, *angiun*, "corner."

KAPITHE, "measure;" Armenian, *chaph*, "measure."



KIRGHIZ TATAR.



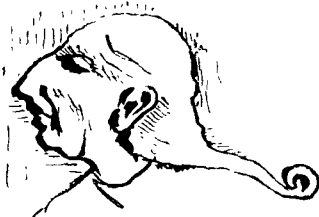
UZBEK TATAR.



AKKADIAN



AKKADIAN



HITTITE CHIEF.



CAPPADOCIAN



ETRUSCAN WOMAN



ETRUSCAN MAN

C. G.
del

Explanation of Plate I.

- Fig. 1. *Kirghiz Tatar*. From Schuyler's *Turkestan* (Vol. i, p. 42), engraved from a photograph.
- Fig. 2. *Uzbek Tatar*. From same source (Vol. ii, p. 28).
- Fig. 3. *Akkadian*. From photograph of a bas-relief at Tell Lo. (De Sarzec. Plate III).
- Fig. 4. *Akkadian*. From photograph of a statue-head at Tell Lo. (De Sarzec. Plate XII).
- Fig. 5. *Hittite Chief* (with pig-tail). From Karnak. From photograph from Mr. F. Petrie's cast (No. 156).
- Fig. 6. *Cappadocian* (with pig-tail). From photograph, of bas-relief at Keller, kindly lent by Mrs. Barnes.
- Fig. 7. *Etruscan Woman*. From bronze in British Museum.
- Fig. 8. *Etruscan Man*. From terra-cotta figure on sarcophagus in British Museum.

DISCUSSION.

Dr. BEDDOE had noted Major Conder's statement that the Georgians showed signs of Turanian or Mongoloid affinity in their physical type. He thought people were too apt to take their idea of a Turanian type too exclusively from the Kalmuks, and perhaps from extreme examples among them. A physical type more Turanian than Aryan was quite consistent, as in the Georgians, with a high average of beauty. A large aquiline nose was not uncommon among the Turkomans and Yuruks, though their blood was but little crossed, so far as we could judge, with that of any Aryan stock. The beard might be very late in development, yet ultimately attain considerable proportions. The wearing of the "pigtail" by the Hittites he thought very important; it was only straight coarse hair that lent itself fully to that mode of coiffure. The features of the Tokkari, as well as of the Hittites, he thought Turanian. If Major Conder could bring linguistic or other evidence to bear on the Turanian origin of the Pelasgi, it would help them to explain a prevailing physical type among the modern Greeks, which was not Aryan, and was not that handed down to us in alleged portrait-statues and which could hardly have been brought in by the Slavs, who were pretty pure Aryans.

Mr. G. BERTIN said that Major Conder in his interesting paper seemed to have shown that a Turanian population (to use the term generally accepted, though perhaps not satisfactory)—a population akin to the Akkadians of Babylonia—inhabited Syria and Asia Minor and used a special system of writing, which has been called "Hittite." This conclusion is not surprising now that the cuneiform studies have demonstrated the presence of Akkadian kingdoms at a most ancient date (before B.C. 6,000). From cir-

cumstantial evidence it appears also that the use of the "Hittite" writing is much earlier than was thought before, and must be anterior to the Babylonian and Egyptian invasions of Syria. The "Hittite" script seems to have been derived from early Egyptian picture writing, perhaps collaterally with the Babylonian before it became cuneiform; it lasted to a rather late date, but was ultimately superseded by the Phœnician alphabet. As to Asia Minor the Turanian populations extended there probably at the time of the Akkadian invasion (B.C. 6,500 *circa*), at a late date they were superseded by Aryan tribes, coming from Europe, for, from the mountains of Armenia to the Persian Gulf, no Aryan tribe appeared before the fall of Nineveh.

Mr. LEWIS enquired whether Major Conder connected the dolmens and circles which were mentioned in his works as existing in Western Asia with the "Turanian" or any other race or races, and, if so, which?

Mr. BOUVERIE-PUSEY asked Major Conder if he was not right in supposing that tribes of Asia Minor had contributed auxiliaries to the king of the Hittites in his war against Rameses the Great; he also asked what Major Conder thought of Professor Sayce's view that the notion of the Amazons was derived from Hittite priestesses armed with the battle-axe, and whether there is any evidence of the existence of such priestesses.

MAJOR CONDER in reply said that he was glad that the views expressed in his paper met with so favourable a reception from the President and members of the Institute. As regards the points raised he was aware that Mr. Bertin had brought forward important evidence of the early civilization of the Semitic race in Chaldea as shown by star names, &c., but he doubted if we knew enough to determine the origin of the civilization of Mesopotamia. It seemed, however, certain that the Turanians were the first to spread this civilization in Asia Minor and Etruria as well as in Syria. He agreed that the script in question was older than the Phœnician alphabet or than the Babylonian invasion of Syria about 1450 B.C., and believed that the so-called "Hittite" monuments must be at least as old as 2000 B.C., perhaps much older. Lenormant had long ago pointed out the existence of a Turanian population in Asia Minor, and Major Conder believed that about 500 B.C. there were in addition to Semitic colonies four races in Asia Minor, 1st Greek, 2nd Phrygian with a language of Aryan type the basis of modern Armenian, 3rd Lycian, with a language somewhat like Zend, 4th the Lydian-Carian race, Turanian and perhaps nearest the Turkic. As regarded rude stone monuments he was inclined to believe that in Western Asia they were the work of Turanians as was what Pausanias called "Cyclopean" masonry accompanied by false arches which existed wherever the Turanians were known, in Media, Syria, Asia Minor and Italy. The distribution of rude stone monuments in Syria (of which he

had inspected some 700 examples) seemed to show that they were destroyed within the region of the influence of the Kings of Judah as were also the bas-reliefs and rude statues of the Turanian Canaanites. As to the use of bronze, gold and silver, it was certain that these metals, with lead and iron, were all known to the Akkadians, as shown by cuneiform texts. With respect to the alliance of the Kheta with tribes of Asia Minor there was monumental evidence that such alliance did occur in face of Egyptian invasions, but it was not known whether such alliance was more than temporary, and Major Conder considered that this gave no real ground for extending the name Kheta to any tribes beyond the limits of Northern Syria where alone do they seem to have been known to either the Egyptians or the Assyrians. The proposal to identify the Amazons with priestesses of the goddess Ma mentioned by Prof. Sayce appeared to Major Conder to have no foundation. He was very glad to find that the President gave his consent to the view that the race represented on the monuments which accompany the so-called "Hittite" hieroglyphs was Turanian and observed that the portraits of the Kirghiz Tatars much resembled the Kheta and that the Tatar physiognomy of the Etruscans had been pointed out by Dr. Isaac Taylor and Sir C. T. Newton. The peculiar hat worn by the Philistines and the Takrui on the Karnak monuments also appeared to be represented on a monument discovered by Sir C. W. Wilson at Damascus which was of the most archaic character. Major Conder believed the President's view to be possibly correct, making the Pelasgi to be Turanians, and cited the word *Tepæ* for "hills," said by Varro to be Pelasgic, and resembling the Turkish *Tepe*, Mongol *dobo*, Finnic *typa* "hill." Major Conder was also glad to have the President's support in the question of the racial character of the Georgians and other tribes of the Caucasus. As regarded the Cappadocians, it appeared certain that the same race which has left these peculiar hieroglyphs at Carchemish, Aleppo and Hamath, also existed in Cappadocia, where the same script is found on the monuments. In conclusion Major Conder noticed that Prof. Sayce lately wrote from Egypt concerning a letter in what the professor believed to be a "Hittite dialect," with Akkadian verbal forms, and remarked that in his latest work Prof. Sayce calls the Hittites "Mongols." Major Conder hoped that the discovery by German explorers of bilinguals, said to throw light on the Hittite language, might serve to further elucidate the subject when published.

MARCH 12th, 1889.

PROF. FLOWER, C.B., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of the MARQUIS DE NADAILLAC, as a Corresponding Member, was announced.

The following presents were announced, and thanks voted to the respective donors :—

FOR THE LIBRARY.

- From the AUTHOR.—Natural Inheritance. By Francis Galton, F.R.S.
- Note on the Lapps of Finmark. By H.H. Prince Roland Bonaparte.
- La Nouvelle-Guinée. 3e Notice, Le fleuve Augusta; 4e Notice, Le golfe Huon. By H.H. Prince Roland Bonaparte.
- Handskelett und Hyperdaktylie. Von J. Kollmann.
- Geografia Etnologica e Storica della Tripolitania, Cirenaica e Fezzan. By Ferdinando Borsari.
- From PROF. DR. H. SCHAAFFHAUSEN.—Die XIX, allgemeine Versammlung der deutschen Gesellschaft für Anthropologie, Ethnologie und Urgeschichte zu Bonn, den 6. bis 10. August, 1888.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. Vol. v. No. 3.
- From the SOCIETY.—Proceedings of the Royal Geographical Society. Vol. xi. No. 3.
- Proceedings of the Society of Biblical Archæology. Vol. xi. Part 4.
- Journal of the Society of Arts. Nos. 1893, 1894.
- Journal of the China Branch of the Royal Asiatic Society. Vol. xxiii. No. 1.
- From the EDITOR.—Nature. Nos. 1009, 1010.
- Science. Nos. 315, 316.
- Revue Scientifique. Tome xliii. Nos. 9, 10.
- Bullettino di Paletnologia Italiana. Tomo iv. N. 11 e 12.

EXHIBITION of an ARTIFICIALLY-DEFORMED SKULL from
MALLICOLLO.

By PROFESSOR W. H. FLOWER, C.B., F.R.S., V. P. Anth. Inst.

PROF. FLOWER exhibited the head of a native of the Island of Mallicollo in the New Hebrides, artificially deformed, and with the face restored with a composition made of vegetable fibres and gum, exactly as in the specimens previously described by

him in the *Journal of the Institute*, vol. xi (November, 1881). It is to be noted, however, that those specimens which were monumentally prepared were apparently all males, while in this one feminine characteristics predominated. It was presented to the British Natural History Museum by Mr. Henry Anson, who has sent the following note in reference to the practice of skull deformation in Mallicollo:—"The inhabitants of this island afford the only example of this process of skull compression out of thousands of people from the different islands that came under my notice as Protector of Immigrants during a period of six years in Fiji. It is curious also that the practice obtains only amongst a certain section of the inhabitants of this large island, its limits being determined as far as we know by geographical position. The people having compressed skulls do not appear to suffer in intellect from the practice, but there is no doubt that their health is seriously prejudiced thereby when suffering from the fevers which are common to such people, the mortality being greater amongst them than amongst their round-headed fellow countrymen, those with compressed skulls being subject to severe delirium on slight provocation. I was never fortunate enough to meet with an islander who could inform me of the supposed origin of the practice."

DISCUSSION.

DR. CODRINGTON said that there were two places in Melanesia in which the skulls of infants are artificially deformed; one in the Island of Three Hills, one of the New Hebrides group, and near to Malikolo, the other in the interior of Fiji. He had seen himself natives of the first-named place with deformed skulls, and had been told that the deformation was effected in infancy; but he did not know the method by which it was effected. His authority with regard to Fiji was that of the Rev. Lorimer Fison.

DR. HICKSON observed that in some districts of Minahassa in North Celebes, the custom still persists of flattening the heads of the children by means of a board called the "taleran" bound on to the forehead. Every morning when the child is bathed the board is loosened and immediately afterwards fixed up again. This process of head manipulation lasts for fifty or sixty days after birth. The only other district in which the practice occurs in the Malay Archipelago is Birool, another province of North Celebes. In early times it is stated the flattening of the head was a prerogative of nobility.

Mr. C. H. Read remarked that he had seen, in the Borneo section of the Colonial Exhibition, an instrument stated to be used for compressing the skull. It consisted of an oblong piece of hard wood, with projections at the two ends. From end to end was a broad strap, which seemed to be intended to pass around the head,

34 H. BALFOUR.—*Note on the use of "Elk" Teeth for Money.*

while a narrower band was attached to it at right angles, as if to pass over the top of the skull. Thus the pressure would be either upon the forehead, or at the opposite side of the skull. Mr. Read did not remember to have seen any skulls from Borneo so deformed.

The following note was then read by the Secretary :—

NOTE on the use of "ELK" TEETH for MONEY in NORTH AMERICA.

By HENRY BALFOUR, ESQ., M.A., F.Z.S.

AMONG the various natural objects described as passing for currency in different savage races, I have not seen it recorded that "Elk" teeth are so used by natives of North America. This particular form of money consists of the canine or "eye" teeth of the Wapiti (*Cervus Canadensis*, Schrab), which goes by the name of "Elk" in those regions. The canines are alone used, and of these there are but two in each animal. They pass as currency amongst the Shoshone and Bannock tribes of Idaho and Montana, and probably, no doubt, other tribes also; passing as a substitute for coin amongst the natives themselves, and not between Natives and Whites. They represent at present a value of 25 cents of American money; but, with the increasing scarcity of Wapiti, it is reasonable to suppose that the value will rise, if these teeth retain their function as currency. There being considerable difficulty in obtaining a quantity of these products of hunting, and from the fact of each animal only supplying two canines, it is easy to see that a definite value can be set upon such trophies, and how they may have passed into a recognised form of currency. As is so frequently the case with savage money, these "Elk" teeth are used as ornaments; they are frequently pierced with a small hole, and sewn on to clothes, pouches, &c., to form decorative trimmings. I am indebted to my friend, Mr. J. W. Young, for specimens (some of which are exhibited), as well as for information concerning them.

NOTES on the MODERN SURVIVAL OF ANCIENT AMULETS AGAINST
the EVIL EYE.

By E. B. TYLOR, Esq., D.C.L., F.R.S., V. P. Anth. Inst.

Dr. TYLOR exhibited a series of the brass ornaments hung to the harness of cart and waggon horses in England, and called by saddlers "face-brasses." In the course of collecting amulets against the evil eye, he had received by the kindness of Mr. Neville Rolfe, of Naples, a set of brass harness-ornaments, including crescent moons, there used avowedly for this purpose. The correspondence of these with the brass crescents (with and

without a star or sun) which are still used in England, and with others in South-eastern Europe, proves conclusively that they are all evil-eye charms, the Latin *phalerae*. The old English crescents already mentioned indeed match those represented on Trajan's column and other monuments. Taking this form as the beginning of the English series, and as having survived into our own time, it can be traced through a series of modern degradations consequent on loss of meaning, into mere ornaments decorated with a horse's head, a beer barrel, or a portrait of the Queen.

Dr. Tylor went into some evidence as to the origin of the moon-symbol in ancient magic, and hoped to be able to treat the subject methodically in a future paper.

DISCUSSION.

Mr. G. M. ATKINSON remarked that for some years back he had collected and drawn some 300 different forms of these horse decorations. He divided them roughly, first, into two classes—*Marks of Ownership*, as shields, crests, monograms, trade marks, &c.; and *Symbols*, the most important, and the commonest of these being a flat disc on the top of the head between the ears, which represents the sun, and a crescent on the forehead, for the moon. These are combined with stars, national emblems (as rose, shamrock, and thistle), acorns, hearts, lion, horse, and horse-shoes. A great variety of such forms combined still survive. These are also worn on the breast of the horse, on the martingale, generally in odd numbers, 3, 5, or 7, and are found also on the sides, usually on the left side just behind the shoulder. On the top of the head, smaller, but similar, symbols are found, the most frequent being little swinging bells; these are called "flyers," and tufts of hair are sometimes attached to them. The crescent form is also used on the harness of camels and elephants. It is found with the Roman antiquities in the British Museum, and in Mediæval times, in the Nativity groups, tapestries, and pictures, &c. Mr. Atkinson hopes to exhibit his collection of sketches at some future meeting of the Institute.

Mr. W. GREATHED thought the crescent-moon ornament might be referred to the cult of Diana believed to have been carried on up to a late date on the site of the present St. Paul's Cathedral.¹ If Diana was also the great huntress, huntsmen and others, to whom horses were valuable auxiliaries, would be likely to place them under Diana's protection by the use of her symbol. In the

¹ "Some have imagined that a temple of Diana formerly stood here, and when I was a boy, I have seen a stag's head fixed upon a spear (agreeably enough to the sacrifice of Diana) and conveyed about within the church with great solemnity and sounds of horns. And I have heard that the stag which the family of Bawd in Essex were bound to pay for certain lands used to be received at the steps of the church by the priests in their sacerdotal robes and with garlands of flowers on their heads. Certain it is this ceremony savours more of the worship of Diana and of Gentile errors than of the Christian religion." Camden's "Brit. Middlesex." See too Dean Milman's "History of St. Paul's." —W. G.

circle of worshippers this would ensure for them a general care and attention which would tend to avert the "evil eye," that is a secret malicious injury and even the premeditative gaze of the designing culprit.

Mr. WALTER COFFIN thought that if no other origin were known for the prophylactic virtues so commonly attributed to the horse-shoe, the close resemblance in form to the larger specimens exhibited of the models of conventional lunar crescents might suggest the possibility of some relation between very similar uses.

Mr. C. H. READ did not think that the frequent occurrence of the crescent upon horse-trappings could be held to connect the horse with Diana, as being sacred to that goddess, at least in the absence of some more direct evidence. Referring to a figure which Dr. Tylor had drawn upon the board, Mr. Read remarked that it seemed to represent the boat of the Egyptian Rā, or the sun, the boat being somewhat of the gondola form, with the flat disc of the sun standing in the middle. There did not seem to be any intention to represent the crescent moon under the form of a boat. Mr. Read deprecated the formation of a theory of evolution upon the evidence of so limited a series of these modern phaleræ, and one in which so many of the intervening links were entirely wanting.¹

Mr. WALLHOUSE subsequently sent the following note:—

"With regard to the moon-shaped amulets against the evil eye described by Dr. Tylor at the meeting of March 12th, it may be mentioned that lunulæ or crescents formed of thin plates of metal, sometimes gold, are worn by children on the western coast of India, suspended upon the breast with the points upwards. Also respecting the 'Phœnician hand,' that symbol is used by Mussulmans throughout Southern India: impressions in red paint of a hand with outspread fingers are everywhere to be seen upon the walls of mosques, masjids, and Mussulman buildings. Standards, too, in the shape of hands, to which are given the names of Mohammedan martyrs, are carried in procession at the Mohurram festival. In Ireland an arm and hand appear on the armorial bearings of the very ancient family of O'Sullivan, and an oath by the 'hand of O'Sullivan' is not to be broken by any one of the name; the old legend of the family runs:—

'Nulla manus
Tam liberalis,
Atque generalis
Atque universalis,
Quam Sullivanis.'

The figures of a mermaid and a galley appear with the hand on the armorial bearings, and the old family names refer to the sea and navigation, possibly pointing to a Phœnician origin."

The following paper, illustrated by the exhibition of specimens and sketches, was then read by the Author:—

¹ Some interesting references to the use of crescent ornaments on animals, will be found in "Archæol. Journal," Vol. xvii, p. 146.—C. H. R.

On ANTIQUITIES from HUASCO (GUASCO) CHILI.

By C. H. READ, ESQ., F.S.A.

[WITH PLATES II AND III.]

THE specimens that I have the pleasure of exhibiting this evening form part of an interesting addition recently made to the Christy Collection; they were obtained from a firm of Liverpool merchants trading to South America, to whom they had been forwarded for sale by a correspondent in Chili, as a collection which had taken some years to form.

They are believed, however, to have all been found at one place, *i.e.*, Peña Blanca, near Huasco, 28° 30' S. Lat.

Unfortunately, before the collection was offered to us, a selection had been made from it for the Museum at Liverpool. I mean that it is unfortunate, only as diminishing the scientific value of the series, and not that we grudge the Liverpool Museum what it has obtained. I felt so much interest in the specimens belonging to the Christy Collection that I asked the Committee of the Liverpool Museum to allow me to see their portion of the collection.

The Committee kindly granted my request and I am thus able to describe the whole of the collection. I will take first the specimens at the Liverpool Museum.

They comprise sixteen objects made of bronze or copper,¹ as well as a rough lump of the metal, which may tempt one to infer that the implements were made on the spot. The largest of these is a thin oblong piece of copper $4\frac{1}{2}$ inches by $2\frac{3}{8}$ inches, with a sharp edge along one of the longer sides, and a small squared hole, probably for attachment to a handle, at $\frac{3}{8}$ -inch distance from the opposite side (Pl. II, fig. 1). This might be called a razor, the thinness of the metal rendering it capable of taking as keen an edge as the material will allow, and it is at any rate as well fitted for the purpose as are the analogous implements used by the Lake dwellers of Switzerland and France. Next are four objects of the celt or chisel class; one of them is of exactly the form of a flat Irish celt, but of diminutive size, 2 ins. long, fixed into a wooden handle, and bound with cord (fig. 4). The handle is imperfect, and the wood of which it is formed is very dry and friable from age; two of the others are similar in form, and are at present without handles, but having a long tang which may possibly have been fixed in a handle (fig. 2); the fourth, which is much oxidised, is of a different form; the blade in this instance is extended on either side of the stem, at a right angle, like the letter T upside down (fig. 3). These forms and especially the last, are well-known Peruvian types, and the

¹ Whether the metal of all the objects is copper, I cannot say, but many of them are certainly of that metal, and made by hammering.

British Museum already possesses one of each type from graves at Arica, and, there are several examples in our Peruvian series of the cutting implements, with a long narrow blade and the handle projecting at right angles from the middle of the back. These tools, I imagine, may have served for cutting up leather for garments, or, for instance, the leather sandals frequently found in graves in Peru.

There are only three fish-hooks of bronze, of simple form and without barbs (figs. 12 to 14), and in this they resemble the Peruvian examples. The late Dr. Charles Rau, in his excellent work on "Prehistoric Fishing," p. 324, quotes a statement of Squier, that he found with a mummy at a place a little south of Lima, a net, a number of copper sinkers, and some copper hooks, "barbed like ours." Dr. Rau could not discover where these hooks were preserved, and expresses considerable doubt as to the accuracy of the description, and I must confess that all the specimens that I have seen from Peru are unbarbed.

One of the bronze objects does not appear to me to be of the same period as the rest. It is a penannular ring, with an angular projection at one side, and might well serve as an earring (fig. 8). I conjecture that it is a native earring of modern date and perhaps of European make. This is to some extent confirmed by the presence in the collection of two small amulets of stone in the form of a clenched hand (fig. 5, 6). Amulets of this form are common in Italy at the present day, and have been there in use from Roman times, as charms against the evil eye. There can, I think, be no question that the specimens from Peña Blanca are, at any rate, not of pre-Spanish times, and they may be much more modern. The rest of the objects of bronze consist of seven small square plates $\frac{3}{4}$ inch across, with a central hole, and bent down on each side, so as to form a quartrefoil. These may probably have been sewn on a dress as ornaments.

The only other specimens worth notice, are two fish-hooks of shell, several small beads of turquoise and shell, a vessel of pottery, painted in colours, and a lip ornament of stone, precisely similar in form to those worn by the ancient Mexicans. The Peruvians were more addicted to ornaments for the nose than for the lip, and although several of the existing tribes of Indians in Brazil wear ornaments through the lip somewhat resembling the ancient Mexican, it is interesting to find so close a likeness at such a distance to the south.

The two fish-hooks are of a form commonly found wherever these are made of a single piece of shell, viz., a broad flat hook, more or less circular in outline (figs 9, 10). This shape results from the mode of manufacture, which is well shown in a series of figures in Dr. Rau's work (fig. 212); the first figure shows a plain circular piece of shell, the next has a hole broken through the

middle, the third has the edges ground, one side of the circular ring thus formed is broken through, and one of the ends is polished to a point, while the other is fashioned to allow of its being fastened to the line. The perfect hook from Peña Blanca is absolutely of the same form as those figured by Dr. Rau, as from the Island of Santa Cruz, on the Californian coast.

It may at first sight seem unlikely that a people having knowledge of metal should use hooks made with great labour from an apparently inferior material. It should be remembered, however, that hooks made from a brilliantly tinted nacreous shell, such as *haliotis*, or the pearl oyster, serve not only as hooks but as bait at the same time, just as English anglers use spoon-bait. The Maori fish-hook is often found lined on one side with a piece of bright *haliotis*, and the Solomon Islanders go still further, and make the shank of the hook in white shell, in the form of a small fish with two small discs of shell to represent its eyes. A fisherman furnished with hooks of this description would be in a much better plight if without bait, than if he had the most deadly of metal fish-hooks.

I have now noticed, in more or less detail, the portion of this collection in the Liverpool Museum. I should mention that the portion obtained for the Christy Collection is by far the larger of the two, and though it contains no object of bronze, and the specimens of pottery are unpainted, yet it forms a series by no means without interest. I have brought here a sufficient number to illustrate the whole of what we possess, and it will therefore be unnecessary to enter into any detailed description of the individual specimens.

The three vessels of pottery are somewhat unusual; the simple vase is remarkable for its rude make; the one with the handle (Pl. III, fig. 1) is also of an uncommon type and bears some resemblance to a European jug, but is, I think, of the same period as the third vase (fig. 2), as it is of similar clay and of an equal degree of finish. The shape of this last, however, is the most curious feature about it, and I should have been puzzled to account for its form but for the occurrence of much larger ones of the same kind on Ometepe Island, Nicaragua, where they were discovered by Mr. F. Boyle and Mr. Jebb in 1866, and examples are now preserved in the British Museum. These large pots were used as burial urns in New Granada, and the burnt body having been placed inside with such implements as seemed good to the survivors, a bowl-shaped vase was placed as a cover. It would not be surprising to find smaller vases of the same form associated with the larger ones, as indeed is the case; but the locality where the vase before us was discovered is separated from Nicaragua by a vast extent of country, and as far as I am aware they have

never been found in Peru. I would call attention to the little knobs which ornament this vessel. In the Nicaraguan urns there is generally a rude representation of the human figure attempted, by applying strips or knobs of clay to represent the features and limbs, which are here reduced past recognition. This seems to me therefore a precisely similar case to that of the vases from Cyprus, where a complete human figure is found on the vases, and in the modern examples it is reduced to a few raised dots.

Among all the objects comprised in this collection, I was most pleased with the interesting series of bone fish-hooks, of which I have brought several examples here this evening. I should perhaps state that I am responsible for their present form. When they arrived at the Museum the barbs were not placed with the shanks, but after some little consideration it seemed to me an obvious conjunction. It will be seen that these implements, the barbs especially, are very well made, and if, as I think, they were used for fishing, that must have been the chief pursuit of the community that used them. The barbs have evidently been attached by means of twine, and short lines have been scored on each barb and on the back of the shank to give the cord a firmer grip. The killing power of many of these hooks is increased by the lower point of the shank being as sharp or sharper than the barb itself, and this might be adduced as evidence that they were heads of javelins, and it is possible that some of them were so used. As against this theory I would point out that the largest specimen in the series (fig. 1), has the lower end of the shank divided into a fish tail which would, if anything, add to its power as a hook, but would certainly diminish its efficiency as a javelin. And further, in the fish-hooks from Peru, which are the nearest to this type that I know, the point of the shank is sharp and the barb is bound on in the same way as these must have been.

It is unfortunate that Dr. Rau confined his work on fishing-apparatus to the north half of the American Continent, and beyond a few notes in the Appendix, did not mention any ancient South American specimens. I do not know of any others of the same material which

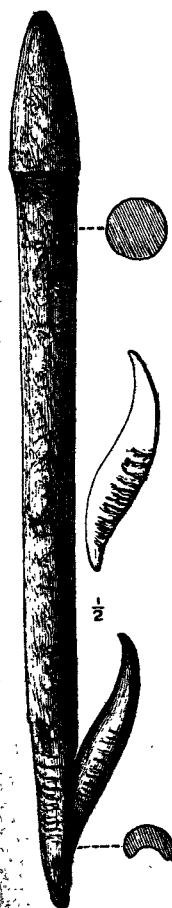


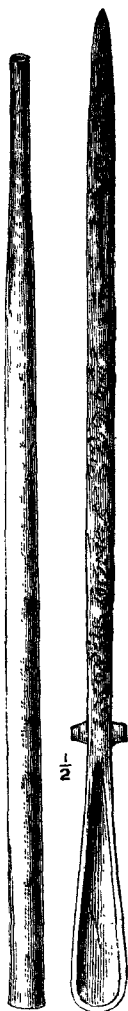
Fig. 1.
Fish-hook of bone,
from Huasco.

can compare with these before us in perfection of workmanship or in elegance of outline.

Among the other articles of bone are several spoons, some tubes apparently of bird bones, some instruments in form like marrow scoops, and a number of piercers, many of which have spatulate ends.

One is always tempted to suspect Spanish influence in examining South American collections containing objects which have European analogues. This has passed through my mind with regard to these spoons, and although their forms are not entirely unlike some which have been in use in Europe, yet I think the condition of the bone betrays a certain antiquity, at least as great as that of the other objects (fig. 3). The bird bone tubes are finished smoothly at the two ends (fig. 2), and I think were probably used to drink up some decoction, like the *maté* of Paraguay. The scoop-like objects I cannot assign to any definite use, unless indeed they are marrow scoops. The piercers present no unusual features, and were probably applied to any use.

The stone implements comprise arrow-heads, scrapers, and borers, as well as some implements that, if found in England, we should call knives. These are generally carefully chipped and have an edge all round. The arrow-heads are all of known types, though we are more accustomed to them further north, *e.g.*, in Arizona, and they resemble those from that state both in their delicate finish, and in the selection of pieces of stone of brilliant or attractive colours. The borers are implements with broad flat butts, usually, though not always, rudely finished, and having a long point, quadrangular in section and carefully chipped on all sides (Pl. II, fig. 11). These Dr. Rau seems to have considered as tools for the making of shell fish-hooks, though they seem much too slight for the purpose. The only other objects worth remark are two utensils of stone, one of them possibly a net weight, the other a small grinding stone for colour, or for the finishing of bone implements. A lump of ochre was among the Liverpool Museum series, and this may possibly be the colour slab of the ancient artist.



Figs. 2 and 3.
Tube and spoon
of bone, from
Hiasco.

Description of Plates II and III.

All the specimens figured in these plates were obtained from Peña Blanca, Huasco, Chili.

Plate II.

- Fig. 1. Thin oblong knife, or razor, of copper, having a fairly keen edge on one side; near the back is an oblong hole, possibly for the attachment of a handle.
- Fig. 2. Copper chisel, formed by hammering. It was, no doubt, originally fixed in a handle, like Fig. 4.
- Fig. 3. Cutting implement of copper or bronze, now much oxidised. This form is commonly found in Peruvian graves.
- Fig. 4. Chisel of copper, in make resembling Fig. 2. The wooden handle much decayed; the binding is of fine cord.
- Figs. 5, 6. Two amulets of stone, in the form of a right hand clenched. This form of amulet has been in use in Europe, as a charm against the evil eye, certainly since Roman times, and it exists to this day in Southern Italy, as well as in other places. It is believed to have a phallic significance. It may be that these specimens, as well as Fig. 8, are of a later date, or at any rate of European origin.
- Fig. 7. One of seven square plates of copper, bent into a pyramidal form, with a quatrefoil outline; a hole through the centre; perhaps an ornamental stud for the dress.
- Fig. 8. A penannular ring of bronze, cast. This seems different in character from the rest of the find, and resembles the earrings worn by the modern Indians of Patagonia.
- Figs. 9, 10. Two fish hooks of shell, of simple form. Fig. 10 is imperfect at the point, but shows the teeth at the back of the shank for attaching the line.
- Fig. 11. Borer of chert; flat butt; the point carefully chipped into a quadrangular form. Implements of this form are believed to have served to drill the central hole in making fish hooks of shells, such as Figs. 9, 10.
- Figs. 12, 13, 14. Fish hooks of copper, of simple form, without barbs.

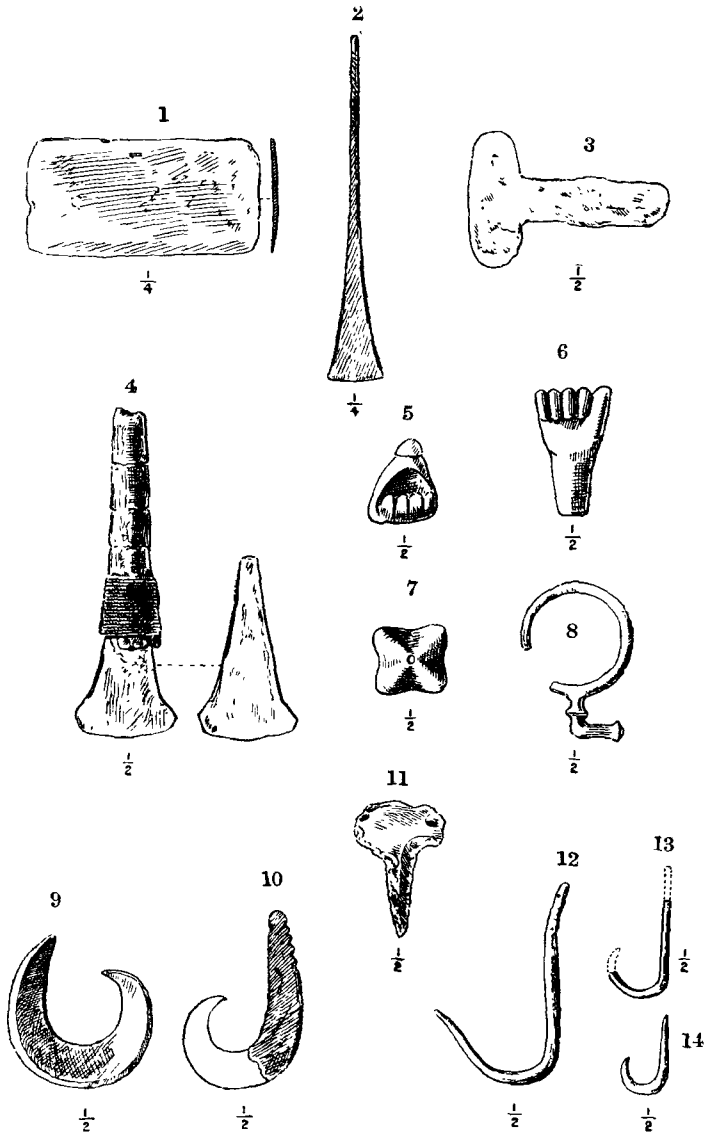
[All the specimens figured in Plate II are in the Museum at Liverpool.]

Plate III.

Fig. 1. Pottery jug.

Fig. 2. Pottery urn.

[These vessels, and the objects represented by Figs. 1, 2, and 3 in the text are in the Christy Collection of the British Museum. The blocks used in Plate III, and those with the letter-press, have been presented to the Anthropological Institute by Dr. A. W. Franks, C.B., F.R.S.]



OBJECTS FROM PEÑA BLANCA, HUASCO, CHILI.

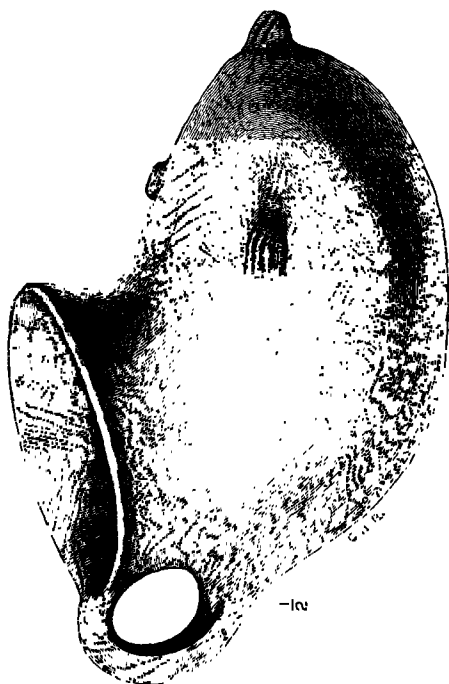


FIG. 2

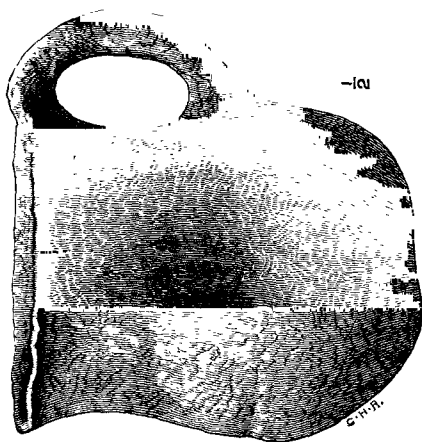


FIG. 1.

ANCIENT POTTERY FROM PEÑA BLANCA, HUASCO, CHILL.

MARCH 26TH, 1889.

E. W. BRABROOK, Esq., F.S.A., *in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

- From SIR RAWSON W. RAWSON, K.C.M.G.—Materiali per l'Etnologia Italiana raccolti per cura della Società Italiana di Antropologia ed Etnologia riassunti e commentati dal Dott. E. Raseri.
- From the AUTHOR.—Social History of the Races of Mankind. Third Division; Aoneo-Maranonians. By A. Featherman.
- Navajo Gambling Songs. By Dr. Washington Matthews, U.S.A.
- A Remarkable Eskimo Harpoon from East Greenland. By John Murdock.
- From the PUBLISHERS (Messrs. Trübner and Co.).—Serious Crime in an Indian Province. By Eustace J. Kitts, B.C.S.
- From the UNITED STATES GEOLOGICAL SURVEY.—Mineral Resources of the United States. Vol. v.
- Bulletins. Nos. 40–47.
- From the ESSEX FIELD CLUB.—The Essex Naturalist. Vol. ii. Nos. 11, 12.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovie. Comptes Rendus des Séances de l'année 1889.
- From the SOCIETY.—Proceedings of the Royal Society. No. 276.
- Journal of the Society of Arts. Nos. 1895, 1896.
- Bulletin de la Société de Borda, Dax. 1889. Premier Trimestre.
- From the EDITOR.—Nature. No. 1012.
- Revue Scientifique. Tome xliii. Nos. 11, 12.
- Bullettino di Paletnologia Italiana. Tomo v. N. 1 e 2.
-

EXHIBITION of PHOTOGRAPHS of MEGALITHIC REMAINS from
JAPAN.

By W. GOWLAND, ESQ., F.C.S.

MR. W. GOWLAND exhibited photographs of megalithic remains from Japan, selected from a series made during his explorations of the dolmens and tumuli of that country in connection with an investigation into their history, geographical distribution, forms and contents, conducted by him in conjunction with Mr. W. G. Aston, Japanese Secretary of the British Legation in Tokyo. The dolmens and tumuli are generally found on the low hills which bound the plains, more particularly those of the chief rivers. They also occur on the plains, but are less numerous there. The tumuli are of two chief forms: 1st. A simple approximately conical mound generally elongated in the direction of the entrance of the dolmen; occasionally with terraced slopes and surrounded by a moat. 2nd. A double form of mound which is that of the imperial tombs of a certain era, and almost always possesses terraced slopes, and a moat, and frequently contains a dolmen. The tumuli of the first class are usually about 10, 15 or 25 feet in height, and generally each contains a dolmen. Those of the second class are much larger, being usually 400, 600 or 800 feet or more in length at the base, with a breadth of about two-thirds of their lengths, and a height varying from 25 to 50 feet or more. The dolmens consist generally of rudely rectangular chambers entered through a gallery of varying length. They are usually built of undressed stones of large size rudely laid together without mortar. A few only are of hewn stones. The roof of the chamber is almost always megalithic, in some consisting of a single stone. Their dimensions are variable, the galleries ranging from a few feet to 10, 15 or 24 feet in length, reaching in one example to 60 feet, and the chambers from 9 feet, in the smaller to 16, 18 or 22 feet in the common type. Some few are longer. Their entrances almost invariably are directed southwards, in a few rare cases westwards. Their contents are human bones (fragmentary), pottery, iron swords, spear and arrow heads, horse bits and metal ornaments of horse trappings and of armour, glass, stone and metal beads and vermillion. Some contain hewn-stone sarcophagi, and a few only sarcophagi of terra-cotta.

Some of the photographs represent rock-hewn tombs containing sarcophagi cut in the rock at the end or side of the chamber; and one a tumulus without a dolmen but with a stone sarcophagus projecting from its summit.

Only the chief features of the megalithic remains were described, an account of them in detail being reserved for a future joint paper by Mr. Gowland and his co-worker, Mr. W. G. Aston.

EXHIBITION of DRAWINGS of RUDE STONE MONUMENTS EAST of
JORDAN.

By MAJOR C. R. CONDER, R.E.

MAJOR CONDER sent for exhibition some drawings of megalithic remains; and the Assistant-Secretary read the following extract from a letter on the subject addressed to the Secretary of the Anthropological Institute:—

"I send herewith drawings (seventeen plates) of some of the dolmens and other monuments which I discovered in the country east of Jordan, for exhibition on occasion of the subject being considered by the Institute.

"These drawings which I made all to the scale of 5 feet to the inch (except the first plate) are about to be published with full descriptions in the 'Memoirs of the Survey of Moab' (300 pp. quarto), now in the press, for the Palestine Exploration Fund.

"A general account of these discoveries will be found in my volume called 'Heth and Moab,' published by the Society; but the full account is reserved for the memoir above mentioned." The number of the examples which I investigated in 1881-2 exceeds 700 in all."

DISCUSSION.

Dr. MUNRO, referring to a question asked by Miss Buckland as to whether or not it was a fact that the megalithic monuments were situated near the sea, thought that there was some evidence to be derived from the study of their geographical distribution in Europe which supported the theory that the dolmen-builders were a seafaring people. Starting in the east these monuments were found in Syria and he was glad to find that one of the papers to-night was a valuable contribution to this part of the subject. Their existence in Palestine had been long known, but the details of their structure and distribution were very meagre. Major Conder's illustrations showed, however, that they were widely distributed to the east of the Jordan, and appeared not only identical in point of structure to those of Western Europe, but had some other special features in common, as, for example, cup marks. Passing westwards, these rude stone monuments were found on some of the islands and shores of the Mediterranean, especially in the Caucasian districts to the east of the Black Sea and the north-western shores of Africa. They were also found in Spain and Portugal, France, the British Isles, and the Scandinavian shores of the Baltic as far east as Pomerania. To the west of the Elbe they ran up a short way into the interior, and had a special development in Oldenburg and the Drenthe in Holland; but it was a very

remarkable fact that no dolmens were found in Central Europe. It was often maintained that in Western Europe these megalithic monuments were due to the Celtic people, but considering the geographical area to which they extended, he did not think this opinion could be maintained. However obscure the origin of the Celts was—and the little that was known pointed to Central Europe as the scene of their development in late pre-historic times—there was no possibility of making the area of their evolution in space and time to coincide with that of the megalithic monuments. In fact the two areas appeared to cross each at right angles.

The following Paper was then read by the Author, who exhibited, in illustration, a collection of nine cork models of the monuments under description, constructed by himself on a uniform scale of five feet to one inch:—

On RUDE STONE MONUMENTS in the COUNTRY of the CARNUTES
(DEPARTMENT EURE ET LOIR, FRANCE).

By A. L. LEWIS, Esq., F.C.A.

THE country round Chartres is considered to have been that territory of the ancient Carnutes which, according to Cæsar, was the centre of the Druidic religion in Gaul;¹ and it has, I believe, been suggested as an argument against any connection between the Druids and the rude stone monuments that, whereas the latter are found in the greatest abundance on the west coast of Brittany, the Druidic centre of operations was, according to Cæsar, near Chartres. The fact, however, is that the Department of the Eure et Loir (of which Chartres is the chief city) has been full of rude stone monuments, so many of which still remain that it stands tenth with regard to the frequency of dolmens out of 88 French departments in a list published by M. de Mortillet in the "*Materiaux pour l'Histoire Primitive et Naturelle de l'Homme*," 1876, p. 318.²

¹ "Once a year they assemble at a consecrated place in the Territories of the Carnutes, whose country is supposed to be in the middle of Gaul." Cæsar, Book 6-13, Duncan's Translation.

1. Aveyron (South)	325
2. Morbihan (Brittany)	269
3. Ardèche (South)	230
4. Lozère (South)	135
5. Finistère (Brittany)	127
6. Côtes du Nord (Brittany)	83
7. Dordogne (South)	81
8. Hérault (South)	79
9. Vienne (Central)	77
10. Eure et Loir	65

These ten departments contain 1,471 out of 2,314 dolmens known to M. de Mortillet, or nearly two-thirds. Five out of the first eight are in the south of France and contain 850, or more than one-third of the total, and three are in Brittany and contain about one-fifth of the whole. The average of dolmens to a department is 26-7, or, as nineteen departments are stated not to contain any dolmens, 33-4 is the average, reckoning only those departments in which dolmens are known to exist. In either case the Eure et Loir with a total of 65 is far above the average. The dolmens of the Eure et Loir being also smaller and therefore more easily destroyed than those of the Morbihan, and the country now more cultivated, it is probable that the difference in number was originally not so great as would appear from M. de Mortillet's table.

My attention was particularly drawn to the remains in this district by an archaeological guide book to France, published apparently about forty years ago, and compiled from various archaeological works, reaching back in some cases perhaps as far as the last century, so that many things mentioned in it are not now to be found, while others have been unearthed which were not known at the date of its publication; the evidence of this old guide book (which for convenience I will hereinafter speak of as "Richard") as to monuments that formerly existed is, however, in some cases, of considerable value.

The country in which the remains I am about to describe are situated is a tolerably level plain, devoted largely to the growth of corn, and with few trees or buildings, these being concentrated mostly in the small winding valleys cut by the Eure, the Loir, and their tributaries, near the banks of which are also to be found most of the dolmens and standing stones. Many of the roads naturally follow the courses of the rivers and the windings of their valleys, but high roads have been made across the plain in almost straight lines between the various places of importance, as will be seen on looking at the maps now exhibited. An inspection of these maps will also show a number of places called Garennnes or Varennes, both of which words are translated by the English word warren, showing that the old Celtic "gw" sound was once prevalent in this district, and that in some places one element in it has dropped out, while in other places the other element has dropped out, as in our own words ward and guard.

My first journey was to a village called Gellainville, about four miles south from Chartres, where, according to Richard, 12 blocks of rough millstone were arranged in an oval, of which the largest diameter was 21 metres, and outside which were other stones ranged without any particular order, but which I hoped might be found to conform to the general rules of the outlying

stones of our own circles; a small engraving of this circle, given by Richard, showed that a cross had been placed on one of the stones, and I hoped that this might have saved the circle from destruction. Dr. Topinard, whom I saw in Paris, said, however, that, if the circle still existed, he should have heard of it from M. de Mortillet, and he thought, therefore, that it must have been destroyed, and this appears to be the case, unless, indeed, some remains of it may be found in an impenetrable little thicket near the railway crossing, where I was told there were some stones, and into which I crept for a few feet, finding one small stone, but seeing no others, nor should I have been able to make a plan if I had seen any. I showed the engraving



"CROMLECH DE GELLINVILLE (CHARTRES)."
(Facsimile of engraving in "Richard.")

to various peasants, including (in the absence of their master) some old servants of the Curé, to whose house I went as a last resource; the only result was that I was directed to some crosses, but they were on modern pedestals, so I departed reluctantly across the plain to Corancez, a village three or four miles further south, round which, according to Richard, were numerous remains.

Half a mile south from Corancez there still exists a ruined dolmen or "Pierre Couverte," the capstone of which is 15 feet long from north to south, and $10\frac{1}{2}$ wide; three of the stones which supported it remain in position, and two have fallen inwards; these formed two sides of the chamber, the other two sides of which have been removed, so that the capstone rests on the ground on the east side. This dolmen would seem to have been a sepulchral chamber, about 15 feet long, 10 wide, and 3 to 4 high inside; part of the mound which enveloped it still remains. While I was measuring and sketching this dolmen my son examined the loose soil under it, and found two small pieces of bone, which I now exhibit, and concerning which Professor Flower says:—"The smaller bone is from a human hand (fourth

left metacarpal), the other probably a piece of a human humerus, but in too fragmentary a state to be certain." It seems to me more likely that these are the last remains of some one interred in this tomb (whether of the great personage for whom it was constructed or another), than that they have drifted into it accidentally. From some heaps of stones by the side of the road from the dolmen to the village my son picked a perfect and well-chipped boring implement and two very good flakes of flint which I also exhibit. Richard mentions various remains between Corancez and Morancez, a village between it and Chartres, but, although I made various enquiries, all I could find was a solitary stone lying flat on the ground in a wood. The names of some of the places in the neighbourhood, however (as for instance, Berchères les Pierres and Pierre Pesant) support the testimony of Richard as to the former existence hereabouts of notable stones.

My next point of departure was Maintenon, about a mile south from which, on the left of the road to Chagné and St. Piat, are three groups of stones, in a line almost north and south. These are called by Richard Pierres de Gargantua, but I could not find that the people have any special name for them now. The most northerly group consists of two standing stones, respectively 8 feet and $3\frac{1}{2}$ high, about a yard apart, and forming, as they stand, a slightly curved line, perhaps a small segment of what may have been a circle; that side of the larger stone which would in that case have been the inward side, and which faces slightly east of north, has upon it irregularities and cavities which struck me as forming a figure resembling that which, when it occurs on Breton monuments, is called the "Aschia," or axe, but the stone is of so rough a nature, and the figure (if figure it be) so worn, that I could not determine whether it were really natural or artificial; no other stones remain to show whether there were a circle here or not, nor are any mentioned by Richard, who describes these two, saying that the larger is called the Pierre Droite, and was formerly about 10 feet high, with a pointed top, which had been broken, and it is in fact now about 8 feet high, with a flat top, on which a cross may possibly have been placed at some time or other. The second group, about 260 feet to the south, is a ruined dolmen, the capstone of which (14 feet long, by 12 wide, and $1\frac{1}{2}$ thick) has broken in two, and sunk in the middle, being upheld by two supports about $2\frac{1}{2}$ feet high at the south-east end, and one at the north-west end; its axis appeared to have been about 55 degrees west of north, but, in consequence of its having fallen and being occupied by bushes of an uncomfortably stiff nature, I could not get inside it; Richard calls it "le Berceau," and speaks of five supporting

stones, so that there are possibly two so overgrown that I did not see them; there are remains of the tumulus which, no doubt, completely covered it. The third monument of this group is about 360 feet further south, and appears to be the last remains of a sepulchral chamber, two of the uprights of which remain in position, seven feet apart, the capstone (20 feet long, by 6 to 8 feet, by $1\frac{1}{2}$ to 2 feet, the breadth and thickness varying irregularly), rests upon these, the south east end of it resting also on the ground, and the north-west end rising 8 or 9 feet in the air in consequence; its axis appears to have been about 40 degrees west of north; Richard describes it, in the language of the French antiquaries of the old school, as an "inclined dolmen," but does not give any special name to it.

My last base of operations was Bonneval, a small but picturesque town on the banks of the Loir, about 20 miles south from Chartres, which is described by Richard as being in the midst of a large number of rude stone monuments. The chief group of these Richard says is at St. Maur, about three miles south-east, and there I found the remains of three sepulchral dolmens and some other stones, and from the ploughed land around them I picked some flakes of a cherty kind of flint which I now exhibit. The first of these dolmens which is reached from the village of St. Maur consists of a capstone (10 feet, by 6 feet, by 3 feet) supported about three feet from the ground on three other stones, the north-east side is closed by a stone (7 feet long, 4 feet high, and 2 feet thick) which Richard says was formerly a capstone, but which, for anything I could see to the contrary, was in its original position; but both this and the second dolmen, which is about 275 feet south-west from it, are so surrounded with hard thick bushes that it is difficult to make out all the details of their construction, even where the evidence of those details has not been destroyed. The second dolmen appears to have possessed two chambers close to one another, the capstones of which have both slipped to the ground on the side nearest to each other; the largest and most northerly capstone is $10\frac{1}{2}$ feet long, $7\frac{1}{2}$ feet wide, and 2 feet thick, and four of its supporters, which are from 3 to 4 feet high, remain; the smaller capstone is 7 feet long, 6 feet wide, and $1\frac{1}{2}$ foot thick, and three of its supporters also from 3 to 4 feet high, are in position; the axis of these chambers is about east and west, and that of the first mentioned is about north-west and south-east. The third dolmen is 460 feet west from the second, and would seem to have been, when complete, a large chamber, about 4 feet high inside, and 9 or 10 feet square, roofed by two capstones (each from 8 to 10 feet long, 6 feet wide, and 2 feet thick) of which that to the south-west remains supported by three uprights, while others

standing or lying round complete the wall of the chamber on the south-west side; the north-east capstone has fallen and broken in two, and its overthrown supporters lie under and round it; two upright stones also stand outside the wall of the chamber—one on the north-west and one on the south-east side. Richard says it is surrounded by fifteen large stones, but I think this number includes all those which formed the walls of the chambers, and supported the roof; if not, there must have been a circle round the chamber at so small a distance as to be covered with it in the tumulus of which there are still some very slight remains; a row of upright stones has however been found buried in a tumulus in Brittany. About 460 feet from this third dolmen are two stones, 4 to 5 feet high, which seem to be in a straight line, nearly east and west with the third and first dolmens; and, about 180 feet north from these two stones, seven others lie in a heap, which may be the ruins of a dolmen *in situ*, or may have been piled up there to disencumber the land; a line drawn from them to the second dolmen mentioned would pass very near the third, if not absolutely through it; there is a prostrate stone between the second and third dolmens, but not in line, and there may be one or two other odd stones about the neighbourhood.

The most perfect remain which I visited is on the opposite side of Bonneval, at a place a mile and a half away called Ouzenin, and is itself called la Planche de Beaumont, and Richard states that, according to tradition, legal sentences were formerly delivered there. This monument is what the French antiquaries have called a circular dolmen, and consists of eight supporting stones, of which only one has fallen, while the others uphold a huge capstone (15 feet by 12 feet, by 2 to 4 feet thick). The chamber formed by these stones is about 11 feet in diameter, and 3 feet high, there is a very slight trace of the mound in which in all probability it was once enveloped, but the inside of the chamber is not lower than the ground outside; the capstone and many of the others, both of this and of the other monuments described, are of a kind of conglomerate, containing great lumps of bad flint, and it is probably because of the poor nature of the stone that these monuments are smaller than those of Brittany and other places. They differ also from many of those in Brittany or elsewhere in being merely chambers without any gallery leading to them.

In a field on the way from Bonneval to the Planche de Beaumont are about twenty large stones, which seem to form an irregular circle, with, perhaps, the remains of an avenue; but as they are all prostrate, and as the ground is under cultivation, it is possible that many of them have been moved from their

original position. I picked up the scraper, now exhibited, in the field in which these stones lie. Two miles and a half beyond the Planche de Beaumont is the village of Alluyes, where are a fine church, the remains of an old castle, and, beyond these, by the banks of the river, the remains of a dolmen, consisting of the capstone (15 feet long, 6 to 9 feet wide, and 3 feet thick), one side of which rests on the ground, the other being held up by one supporting stone (3 feet high, by 3 feet by 1 foot), while another supporting stone of similar dimensions lies flat on the ground; its axis is about east and west, and the ground beneath is lower than that outside. About 160 feet north from this is a stone (2 feet high, by 3 feet by 1 foot), on a small mound, with a shallow trench 6 feet wide round it, inclosing a square space of about 25 feet each way; there are also some other small trenches and banks, which may, however, have been made to guide or to check a flow of water, as the river is close by.

In the fields between Alluyes and Bonneval, in which I searched for other monuments on my way back to the latter place, there are various collections of large stones, which look as though they were the remains of some of the other monuments mentioned by Richard, removed and piled together to clear them from the land.

I have now exhausted the list of the monuments which I actually saw but not that of those which exist or have existed in the Department. Of these I annex a list which I have compiled from the materials in my possession, but which is I fear far from complete.

List of Rude Stone Monuments in Department of Eure et Loir mentioned in Richard's "Guide du Voyageur dans la France Monumentale," about 1850 (marked R.), Joanne's "Géographie d'Eure et Loir," 1887 (marked J.),¹ and the French War Office Map, 1883 (marked M.).²

Allaine. A fine dolmen called Grosse Pierre, two uprights and capstone, 2 m. 40 × 2 m. 24 × 1 m., with a hole in it; and six uprights, without capstone, belonging to another dolmen. (R.)

¹ One of a capital series of guides to the French Departments published by Hachette at one franc each.

² In some cases Richard and Joanne put the same monument near two different places, it being between the two, and Richard's descriptions are rather indistinct, so that I may have made some mistakes in compiling the list. Joanne has, I think, also copied from older authors, just as our own local guide-book writers do (the original source of their descriptions being sometimes to be found in publications of the last century), so that it may be doubted whether all the remains he mentions still exist, and the map, like our own Ordnance Map, is uncertain in its selection; of the two sheets I bought, one shows none of these monuments and the other does not show all, even the Planche de Beaumont being omitted from it.

- Alluyes.** Monuments mégalithiques à la Garenne des Clapiers (J.). These appear to be an "inclined dolmen," and four peulvens, or small upright stones, 1 m. 45 to 3 m. high (R.). Pierre Druidique between Alluyes and Montboissier (formerly called Houssay) (M.). This appears to be an "inclined dolmen," 4 m. \times 3 m. \times .85 and 1 m. 65 high (R.). Dolmen, near Bassecour, and various peulvens and stones between Montboissier and Locmarice (R.).
- St. Avit les Guespieres.** Megaliths (J.). Monument Druidique, 1 kilo. south-east from (M.). Dolmen, three stones supporting a fourth 3 m. \times 2 m. (R.).
- Bazoches les Hautes.** Dolmen (J.).
- Berchères l'Évêque** (query Berchères les Pierres). Menhir (J.).
- Berchères sur Vesgre.** Megalithic stone (J.).
- Blévy.** Megalithic stone (J.).
- Bonneval.** 2 kilos. east from, various stones and an inclined dolmen. 1 kilo. north-east at Bel Air, a number of stones (possibly those mentioned by me as being perhaps part of a circle on road to Planche de Beaumont) (R.).
- Le Boullay Thierry.** Peulven (J.).
- Brezolles.** Megalithic stones (J.).
- La Chapelle Fortin.** Dolmen de la Grosse Pierre (J.).
- Châteaudun.** Between it and Molitard an inclined dolmen 3.33 m. \times 2 m. \times .65 m. on two supports. Between it and Brou, at St. Lubin d'Isigny, a peulven called Pierre de Merlise, 3 m. high. Near mill of Vilprovera, a circular dolmen 3 stones 1 m. 15 high supporting a capstone, and one not reaching up to it (R.).
- Civry.** Dolmen (J.).
- Cocherelle.** Inclined dolmen (R.), see Montreuil (J.).
- Corancez.** Megalithic stones (J.). A much mutilated dolmen, &c., 140 metres from it an upright stone (R.). (See account of dolmen *ante*).
- Dampierre sur Avre.** Megalithic stones (J.).
- Ecluzelles.** Demi-dolmen and peulven called "Pierre des Druides." (J.).
- Fontenay sur Conie.** "Pierre Druidique" 1 kilo. south-east from, two "Pierres Druidiques" 2 kilos. north-east from (M.).
- Gellainville.** Megalithic monument (J.). Ellipse of 12 stones, largest diameter 21 metres, other stones outside (R.). This does not appear to exist now, see *ante*.
- Grandville-Gandreville.** Two dolmens called (1) Le Loup de Thionville or Grosse Pierre; and (2) Gres de Linas (J.).
- Illiers.** "Pierre Druidique" 2 kilos. south from (M.).

St. Jean Pierrefixte. Megalithic monument and St. John's fountain (J.). N.B. The name of this commune appears to be derived from the megalith, and the fountain or spring was probably an attraction before St. John was heard of in this country. A. L. L.

Loigny. "Pierre Antique," 1 kilo. south from (M.).

St. Maixme Hauterive. Megalithic stones (J.).

Marboué. Peulven at St. Lubin d'Isigny (J.). (See Châteaudun).

Margon. Megalith (J.).

St. Maur. Peulven, two dolmens, and berceau, or altar; also Fort Lamotte (J.), Monuments Celtiques (M.). Peulven, three dolmens, and near Château of Memillon, a mound with ditch and stones, called Fort Lamotte (R.). See description of dolmens *ante*.

Méréglise. Megalithic stone (J.), "Pierre Druidique," 1 kilo. north-east from (M.).

Mérog, Mézieres. A number of stones between these where legal sentences were delivered (R.).

Mervilliers. Demi-dolmen, called du Mesnil (J.). Le Mesnil marked on (M.), apparently as a place. Inclined dolmen, called Pierre de Mesnil, $4\frac{1}{2}$ m. long, one end buried (R.).

Montainville. Dolmen (J.). A circular inclined dolmen, two capstones (3 m. \times 2 m. \times '65) and several supports (R.).

Montboissier. Megalithic monuments near farm of L'Ormorce (J.). "Pierres Druidiques" (M.). Stone 2 m. 65 high at L'Ormorce and sundry stones mentioned under Alluyes (R.), and see Moriers.

Montreuil. Dolmen at Cocherelle, four stones overturned (J.).

Morancez. Megalithic monuments, of which the stones have for the most part been used in making roads (J.). Pierre Piqué, $2\frac{1}{2}$ m. high, and a number of flat stones; three large slabs in a garden, and another dolmen in a garden, consisting of five uprights supporting part of capstone, the other part being broken off and lying on the ground, called the Pierre Tournante; flat stones between Morancez and Corancez, and four stones at L'Abbaye de l'Eau (R.). The statement of (J.) explains why I could not find these. A. L. L.

Moriers. Dolmen de la Pierre Couverclée (J.). Inclined dolmen, 3 m. 35 \times 1 m. 65, with one upright, in field of Grosse Pierre, Pierre Couverclée (Montboissier), inclined dolmen in middle of field, 3 m. 33 \times 2 m. 33 \times '65 (R.). It is not quite clear to me whether these are two dolmens, or two descriptions of the same one. A. L. L.

Neuvy en Dunois. Dolmen de la Couvre Claire (J.), Pierre Druidique, 1 kilo. north from (M.).

Nottonville. At extremity of park of Château de la Brosse a dolmen called Palet de Gargantua (J.). Pierre Druidique (M.), also mentioned by (R.).

Peronville. Megalithic stones (J.).

St. Piat (Changé). Megalithic monuments (J.). Menhir called Pierrefitte, dolmen called le Berceau, two upright stones, and dolmen (see description of these *ante*). Dolmen called Chapelle du Martyre, dolmen called Pierre fritte, near Mévaisin (R.).

Plancheville (south of). Four or five large stones called Pierres Main Verte, where people go to render homage to the Chapter of Chartres Cathedral (R.).

Prudemanche. Megalithic stones (J.).

Prunay-le-Gillon. Dolmen (J.).

Saumeray. Ruined dolmen (J.). Ruined dolmen on left bank of Loir, on road from Illiers to Bonneval; at Montemain an inclined dolmen (one stone 2 m. 60 × 2 m. 30, resting on two others; towards Alluyes a peulven and some other stones (R.).

Thimert. Megalith (J.).

Toury. Dolmen (J.). Dolmen, capstone $3\frac{1}{2}$ metres long, resting on one stone, 1 m. 15 high, called Pierre de Gargantua (because thought to be erected by this giant) (R.).

Trizay les Bonneval. Near mill of Fricot a gigantic dolmen 14 metres round (J.). Planche de Beaumont near mill of Fricot (R.). See description *ante*.

Ver les Chartres. Megalithic stone of Pierre Pesant (J.). A very large dolmen, much mutilated and buried nearly to level of platform (R.). Pierre Pesant marked on (M.), but on enquiry I was told there was no stone there, and that it was only the name of the place. A.L.L.

Vert en Drouais. Megalithic stones (J.).

Villiers St. Orient. "Pierre Druidique" 2 kilos. south-west from (M.).

Vitray-en-Beauce. Near Beauvoir, a megalithic stone (J.). "Pierre Celtique" (M.).

Voves. Dolmen de la Pierre Levée (J.), "Pierre Druidique" 2 kilos. south from (M.). I was told that this was one stone supported by another (presumably a capstone with only one supporter left), but too far for me to get to while waiting for train. A.L.L.

Ymeray. Pierres megalithiques (J.).

Ymonville. Pierre megalithique (J.), 2 kilos. south from, Pierre Druidique (M.). An inclined dolmen, two upright stones one metre high supporting capstone 2 m. × 1 m. 78 (R.).

On the COMPARATIVE ANTHROPOMETRY of ENGLISH JEWS.

By JOSEPH JACOBS and ISIDORE SPIELMAN.

(WITH PLATE IV.)

In the present paper, we give the results of a number of anthropometric observations on English Jews of various classes carried out on lines as far as possible parallel to Mr. Galton's classical experiments at the International Health Exhibition, 1885. The measurements were made in the first instance at the Jewish Working Men's Club, Great Alie Street, E., the Committee of which was kind enough to grant us the use of a room for several weeks, which was fitted up, as nearly as circumstances would permit, in a manner similar to Mr. Galton's Anthropometric Laboratory at South Kensington. Considerable interest was shown by the members of the Club, of both sexes, a large number of whom submitted themselves to the somewhat wearying process of being tested and measured.

After some time the laboratory was moved to the West End where a number of the Jews and Jewesses inhabiting that quarter were good enough to go through it and submit to the various tests. The results were in each case written in duplicate on a printed form, one copy being torn off and presented to the examinees as some slight return for their kindness.

Great assistance was given throughout by Mr. and Mrs. Ernest Franklin, while Mr. Lissack, the Honorary Secretary of the Club, facilitated our work in every way in his power.

Our apparatus was modelled after those used by Mr. Galton at the Health Exhibition in order that our comparisons might be as correct as possible.

The measurements and tests taken were:—

Height standing without shoes.

Height sitting.

Keeness of sight.

Judgment of eye.

Colour sense.

Hearing; highest audible note.

Breathing power (spirometer, graduated cubic inches).

Strength of stronger hand.

Strength of pull.

Weight in ordinary indoor clothing.

Chest circumference.

Colour of eyes and hair.

Besides these we took measurements of the length and breadth of head, for the most part with ordinary callipers graduated

on the French scale; but towards the end of our investigations we devised an instrument which might be adopted by anthropologists.

We found that this head measurement could be more conveniently taken when the "subject" is in a sitting position and directly after the sitting height is obtained. The apparatus consists of a flat piece of board about 12" \times 9". Directly beneath this, two guides are suspended about 9" apart, so that the widest head may easily go between them. A metal socket moves up and down on each of these guides and is made to fit tightly by means of springs. Attached to the sockets is a frame of steel wire $\frac{3}{16}$ " thick, and which is held in a perfectly horizontal position. This wire is bent in such a way as to make the "tour of the face," resting like a spectacle frame without eye-holes, upon the lower socket of the eye.

The measurement is taken thus:—The board is brought down horizontally upon the vertex of the head of the person sitting, so that the head comes between the guides. The sockets carrying the frame are then brought down the guides until the curved part of the frame rests upon the lower socket of the eye, and the sides of the frame are level with the orifice of the ear. This compels the head to be held in the requisite position for taking this measurement, and the reading upon each guide (which is graduated in centimetres and millimetres) should be identical. The wire may be pressed towards the ear when measuring narrow heads and without losing the horizontal position.

Altogether, by the methods described above, we took on an average 21 measurements on each of 423 individuals; altogether, 8,863 measurements, a number sufficient to give trustworthy results, as the persons tested were themselves average samples of the two chief classes into which English Jews may be considered as divided. These may be described as "West End Jews," the better nurtured inhabitants of the West End and descendants for the most part of Jews who have been long settled in this country, and "East End Jews," the less fortunately situated Jewish dwellers at the East End, the parents of whom in many cases were born abroad. As far as possible it was desirable to get out results for each of these classes separately, and for the most part we have done so. By this means we are enabled to make our results bear directly on one of the burning questions of anthropology, that of nurture *v.* nature, to use Mr. Galton's convenient phraseology. For the "West End Jews" are ultimately derived from exactly the same race and class as the East End Jews, so that differences of race are totally eliminated, and we are enabled to trace the influence of nurture pure and simple. The problem of deter-

mining purely "racial characteristics" will be considerably simplified if we can in this way determine what may be described in contradistinction as "nurtural characteristics." It is in this connection that our investigations appear to us to have a wider outlook than ordinary anthropometric results.

Our method has been to contrast West End and East End Jews so as to get at the influence of nurture. But besides this, there might be a residuum of race influence which could only be tested by comparison with another race. West End Jews might differ favourably in height from East End Jews and yet all Jews differ unfavourably in height from Englishmen, owing to original difference of race. Another comparison was therefore necessary in order to fully test our results and that was with Englishmen generally.

Here we have Mr. Galton's results before us as a standard, and we have accordingly placed the results for all the Jews examined by us side by side with his results for the English men and women examined at the Health Exhibition. We have throughout adopted Mr. Galton's method of "percentiles" (see "*Journ. Anthropol. Instit.*," xiv, 1885, p. 275) and have given the 5th, 25th, 50th, 75th and 95th percentile in each case. The extremes give what we proposed to call the "range" while the middle number giving practically the "medium" or "average" result, though for some purposes there is a slight difference between the two. Finally we have worked out similar calculations for the 50 or so Sephardic Jews, descendants of the Jews expelled from Spain and mostly descendants of the oldest Jewish residents in this country.

With these preliminary remarks we may now at once present a table summing up our main results. We give also, in Plate IV, a set of curves showing the results of these measurements, and comparing them with Mr. Galton's taken at the Health Exhibition.

The curves commence on the left hand side at the minimum, and end on the right hand side at the maximum capacity, whilst the perpendicular lines, where cutting the curves denote the 5th, 25th, 50th, 75th, and 95th percentile measurements. Of course the most important of these perpendicular lines is the centre one, which shows the mean or average of each class as represented by the curves. We need scarcely add that these curves merely express in graphic form the information contained in Table I.

The black solid curve represents Health Exhibition male measurements.

The bar curve, *all Jewish* measurements for comparison.

The star curve, West End Jews.

The dotted curve, East End Jews.

The dot-and-bar curve, the Sephardim (Spanish and Portuguese Jews).

Comparative Anthropometry of English Jews. By Joseph Jacobs, B.A., and Isidore Spielman.

TABLE I.

Subject of Measurement.	Sex.	"East End" Jews.				"West End" Jews.				Sephardic Jews.				All Jews.				Health Exhibition Measurements (1886).			
		5th	25th	50th	75th	95th	5th	25th	50th	75th	95th	5th	25th	50th	75th	95th	5th	25th	50th	75th	95th
Height standing, without shoes, in inches ...	Male ...	60-2	63-0	64-3	66-8	68-8	63-4	65-5	67-7	69-9	71-0	62-4	64-6	66-8	68-8	70-0	63-2	66-1	67-9	69-5	72-4
Ditto	Female ...	57-3	58-5	60-3	61-2	63-0	59-0	60-7	62-0	63-6	65-5	...	...	...	...	...	57-5	59-4	60-8	62-3	64-9
Height sitting, from seat of chair, in inches	Male ...	31-2	33-0	34-7	36-2	38-5	33-5	35-4	37-3	39-6	41-8	33-6	35-8	38-1	40-4	42-7	33-6	35-1	37-1	39-2	41-8
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	30-2	31-5	33-0	34-7	36-1
Span of arms, in inches ...	Male ...	63-0	65-0	67-7	69-0	70-7	64-0	67-5	70-2	72-0	74-0	63-7	65-5	67-7	69-9	72-4	65-0	67-7	69-9	72-4	74-8
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	57-0	59-0	61-5	63-0	64-9
Weight in ordinary indoor clothing, in lbs.	Male ...	...	...	...	...	...	...	...	...	...	...	117	122	139	166	187	101	127	139	150	163
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	107	110	119	145	154
Breathing capacity, in cubic inches ...	Male ...	...	...	...	...	...	...	...	...	...	...	140	150	190	220	235	125	175	200	235	270
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	100	112	130	145	165
Strength of pull, as archer with bow, in lbs.	Male ...	...	...	...	...	...	...	...	...	...	...	60	67	70	79	82	50	61	70	82	90
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	19	32	40	45	50
Strength of squeeze of stronger hand, in lbs.	Male ...	...	...	...	...	...	...	...	...	...	...	65	70	89	93	94	62	74	82	92	104
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	43	49	55	65	66
Keenness of sight, reading distance, in inches	Male ...	0	13	19	25	29	7	19	29	36	38	13	19	25	36	39	7	15	19	29	35
Ditto	Female ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	13	23	29	36

NOTE.—Ages and Units as in Mr. F. Galton's Measurements. 5th, 25th, 50th, 75th, 95th per centiles.

The lighter curves denote the corresponding female measurements in each case.

It will be observed that the black curve is almost invariably at the top of each table both in minimum and maximum measurements, and frequently in the mean measurement; but Mr. Galton's Health Exhibition visitors are beaten in two places: their maximum is inferior in weight to the *Sephardic* Jews, and in keenness of sight to:—The maximum of all Jews and Jewesses, Sephardim and West End Jews. The East End Jews are there, as in all of our measurements, inferior to all but those of the females.

The *Sephardic* Jews are the highest in maximum in weight measurement. They are the *highest* also in keenness of sight test, and their mean is good in both cases. In strength of squeeze they are the highest in the mean, and lowest in minimum and maximum. In strength of pull, they are the highest in minimum, and lowest in mean and maximum. In span, their average is the lowest, but recovers towards the maximum. In height, they retain the 3rd place in maximum, minimum, and mean, the Health Exhibition males and "West End" Jews being superior. In breathing capacity, the same is the case.

The *West End* Jews are highest in average in keenness of sight test, as well as in span of arms. In height, sitting and standing, they retain an even position directly after Health Exhibition male measurements.

The *East End* Jews are practically the lowest everywhere in minimum, maximum, and mean.

The *Jewesses* are superior to the *Jews* in keenness of sight, both in average as well as in minimum and maximum. In this test they are above the Health Exhibition males and females, the "All Jews" maximum, and the East End Jews. The Jewesses are above the Health Exhibition females in minimum, maximum, and mean of strength of squeeze. They are, however, inferior to them in breathing capacity. They are again superior in weight to their Health Exhibition sisters; but inferior in height, sitting and standing, and in span.

The general result of this table is tolerably clear. English Jews in general compare unfavourably in almost all anthropological measurements with the class of Englishmen who visited the Health Exhibition. But if we take the West End Jews, who were probably of very nearly the same class as the Exhibition visitors, the inferiority vanishes almost entirely. Thus, to take an example, while the mean height of "All Jews" was only 65 inches, against 67.9 inches for Mr. Galton's subjects, an inferiority of nearly 3 inches, the West End Jews averaged

67.5 inches against 67.9 inches, an almost inappreciable difference. It is obvious that nurture has made the difference between the heights, both of West End and East End Jews, and between Jews and Englishmen. Are we then to dismiss height altogether from our tests of race? Is it only a difference of nurture that makes the contrast between the Hottentot and the Patagonian? Not altogether, as we can see by scrutinising a little more closely the figures we are discussing. The "means" are much the same among the well-nurtured Jews and the visitors of the Health Exhibition, but "the range," as we have called it, is different. Thus, to take the upper limit, while Englishmen pure and simple reached 72.4 inches, all Jews reached 70 inches and West End Jews reached 70.4 inches.

Here we have seemingly an instance where long continued bad nurture through many generations shows its influence on the measurements of well-nurtured descendants not by reducing the average, but by restricting the range and preventing any very great variations from the artificially reached average.

If this example could be taken as typical, the real test of races is rather to be found in the extreme cases than in the mean. As a matter of fact this is practically the way in which popular judgments about races is made. And yet even in the very case before us we have observed a striking instance of the permanence of race types, even in so variable a thing as height, which seems at first sight to depend only on nurture. In Mr. Jacob's paper on "The Racial Characteristics of Modern Jews" (*Journal*, Vol. xv, 1885, p. 34), he gives the measurements of height for nearly 13,000 Jews, which average 161.2 millimetres or 63.47 inches. This is remarkably near the 63.75 inches which is given in our table as the mean height of all the English Jews examined by us. Altogether it would appear that while anthropological measurements depend on nurture, social conditions tend to preserve the same kind of nurture in various races, and so keep the racial measurements constant. If any change of the conditions of nurture occur, pre-existing conditions of bad nurture tend to lower the "range" in well-nurtured descendants rather than to depress the average. The extremes, say the 95th per centile, are thus more trustworthy racial tests than the average or mean.

Applying this test to our general results, we find inferiority all along the line in the general results of English Jews as compared with other Englishmen, except in two particulars, viz., weight in Jewesses and keenness of sight in both sexes. It is curious that while the average weight of Jewesses is 9 lbs. below that of other Englishwomen, the highest weight reached is 5 lbs. more in the cases of the Jewesses, a confirmation of the

popular impression of the superior solidity of the Jewess. Turning to keenness of sight, we find again that while the Jewish average is inferior, the higher limit is superior to the extent of 1 inch in the case of males, and of no less than 4 inches in the case of females. A "Jew's eye," in its literal sense, seems therefore a valuable possession so far as keenness of sight, though in its appreciation of colour it is far from being so valuable, as we shall see.

Having discussed such of our results as can be compared with Mr. Galton's, we may now proceed to give the additional information we have obtained and compare them with the results of Mr. Jacob's paper just referred to. Thus taking the colour of hair and eyes, we may compare the results reached as regards English, German, Austrian, and Russian Jews, and may contrast them with the Jews of Spanish descent known as Sephardim.

Colour of Eyes and Hair.

TABLE II.

	Eyes.			Hair.			
	Blue.	Grey.	Brown.	Blonde.	Brown.	Black.	Red.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
English Ashkenazic Jews ...	11.1	30.1	58.8	25.5	52.5	21.3	0.7
English Sephardic Jews ...	21.3	11.9	66.8	11.9	61.6	26.5	0.0
Prussian Jews ...	18.7	27.8	53.5	32.4	55.5	11.6	0.5
Austrian Jews ...	23.5	30.6	45.9	27.0	55.4	17.0	0.6
Russian Jews ...	23.0	24.1	52.9	23.2	59.2	13.1	4.5

It will be observed that the number of blue-eyed English Jews is very small, viz., only 11 per cent. (as indicated by the centre line of figures). The Sephardim show 21 per cent. Taking the blue and grey eyes together as *light coloured eyes*, they reach as much as 37 per cent., as against an average of about 50 per cent. in comparison with their foreign brethren, Prussians, Austrians, and Russians.

The main point in the results concerning hair is the higher proportion of absolutely *black* hair among *all English Jews*, than among those of Prussia, Austria, and Russia. The Sephardim have the largest amount of *black* and the smallest of *blonde* hair, and we did not find any example of *red* hair among them.

Considering the absence of any absolute standards for these colours, the results are tolerably uniform, except as regards two points which are probably connected together, the less proportion of blue eyes and the greater proportion of black hair among English Jews as compared with their foreign brethren.

This may possibly be explained to some degree by the fifth class of Jews, which we have included in the above table. The Sephardim or Jews descended from the refugees from Spain after the expulsion in 1492, are generally darker in complexion, and have darker hair than other Jews, as can be seen from the above table, or still more decidedly from the table given by Dr. Beddoe at the end of his paper on the "Ethnological Characteristics of the Jewish race" (*Ethnol. Trans.* 1869). Now our measurements included nearly 50 Sephardim, and doubtless others who had Sephardic blood in their veins, so that the black hair of English Jews may be referred to the greater admixture of Sephardim, who do not exist elsewhere to any extent in Northern Europe (except in Holland).¹ On the other hand, the paucity of blue eyes among English Jews cannot be accounted for on this ground, as the Sephardim do not differ materially in this respect from the rest of Jews. We suspect that a confusion of nomenclature has crept in here, and that we were perhaps more rigid than the foreign observers in restricting the term blue to the purest shade of that colour.

While on this point, we may bring in our results as to the colour blindness of English Jews, which is perhaps the most marked characteristic we have reached. This was tested by an instrument exhibiting strips of wool, among which are four with a green shade, and the subject has to select these by placing pegs opposite to them. However the fact is to be explained, the Jews in our experiments showed a remarkable inability to undergo this simple test, as is shown by the following table, which gives the percentage of failures.

	East End.	West End.	All.	Sephardim.
Jews	14·8	3·4	12·7	13·4
Jewesses	—	2·1	2·0	0

Previous inquirers have observed the inferiority of the Jewish race in this respect, but the results reached far exceed any

¹ It is to be remarked, however, that this admixture is only of recent date, both branches of the Jewish race having been practically endogamous.

previously reached, which average about 4 per cent. for Jews, whereas our results are more than three times as large. It is possible that in a few instances the directions given were not understood, and the mistakes were rather misunderstandings. But it was too obviously plain in many instances where the subject declared that he could not see any difference between brick-red and pea green, and the fullest allowance for misunderstandings would not reduce the percentage to anything under 10 per cent. The causes of this startling defect are probably to be found in the long continuance of Jewish life in cities, where so much less colour and especially so much less green is to be met with. Of its effects we may refer to two: the absence of any painters of great ability among Jewish celebrities, and the want of taste shown by Jewesses of the lower grades of society in the choice of materials for dress, &c. Where there is so large an amount of total colour blindness, there must also co-exist a still larger proportion of dulled sense of colour and a general lack of interest in the delights of colour, especially in its more refined forms. It seemed to us worth while calling attention to this defect, as it is probable that early training can in some measure overcome it, and it is clear that colour lessons should form part of every Jewish child's training.

We may now pass to another measurement in which Jews are generally credited with inferiority and not without reason. We refer to the girth or circumference of chest which is regarded by some anthropologists as of such importance that they calculate from this the "index of vitality." Unfortunately, we cannot in this case compare with Mr. Galton's results, but it is at any rate reassuring to find that English Jews in this respect compare somewhat favourably with their foreign brethren; their average being 35 inches against 80 cm., or 31.5 inches for 8,000 foreign Jews. Here again the influence of nurture is shown by comparing the measurements for East and West.

Percentiles.	East End.	West End.	All.	Sephardim.
5th, 50th, 95th ..	32-35-39.5	34-36-5-41	32.5-35-40	34-36-39.5

It may be observed that in this important characteristic the Sephardic Jews do not show to any advantage, as it must be confessed they do in most of the measurements in Table I. Except in span and breathing capacity, the Spanish Jews show a slight but marked superiority over their Ashkenazic co-

religionists as the rest of Jews are called. It is a point worthy of notice that the three points of Sephardic inferiority, span, girth, and breathing capacity, have to do with the lungs, and would seem to indicate a lower "index of vitality" among the Spanish Jews. They certainly seem to be dying out, and no longer possess the pre-eminence among Jews that they once did. It would be worth while inquiring whether phthisis is to any appreciable extent more frequent among them than among other Jews.

We now pass from these bodily measurements to those of the head on which we have collected materials greater in number than any observer who hitherto dealt with Jewish craniometry on the living subject. We may sum up the whole material at present available in the following table, in which we have kept to the older names and proportions (mesocephalic = 77·8 — 80).

No.	Index.	Dolicho-	Meso-	Brachy-cephalic.	Observer.
67	82·2	19·4	26·9	53·7	Dybrowski.
100	83·2	3·0	11·0	86·0	Blechnann.
313	83·5	4·8	10·9	84·3	Kopernicki.
363	80·0	28·3	28·3	47·4	Jacobs and Spielman.
51	—	17·0	34·0	39·0	Sephardim.

From this it would seem that English Jews are far more long-headed (dolichocephalic) than those on the Continent. This may be partly explained by the fact that our results include some Jewesses and a few lads whose undeveloped crania would tend to lower the average.

But there is, we believe, another explanation which will account for the phenomenon without supposing any deterioration on the part of English Jews, if deterioration it is to be long-headed physically. There might be two men whose cranial index was 75, but the one might have a skull 15 × 20 centimetres, the other 18 × 24. It is obvious that the latter has a larger receptacle for his brain, though he may have the same cranial index. A better test of this "capacity" would be to adopt the plan followed by Mr. Galton in his treatment of Dr. Venn's craniometrical results with regard to Cambridge students. He multiplied height, breadth, and length of skull together, and thus obtained what might be termed a measure of the "knowledge box" of his subject.

Unfortunately, we were unable to take the height of skull,

and could not therefore make the full correction. But we have multiplied together length and breadth, and thus obtained what we might call the "foundation" index of our subjects' skulls. On arranging these as before with the mean between minimum and maximum, and contrasting these with results of the cranial index, we obtain some very light-giving results, which are of sufficient interest to deserve some minute attention being paid to them.

"Foundation Index" of Jewish Heads (5th, 25th, 50th, 75th, 95th per centiles).

TABLE III.

	5th	25th	50th	75th	95th
All English Jews and Jewesses	24·9	26·6	28·0	30·2	32·0
Sephardic Jews	25·8	27·6	28·7	30·4	32·2
West End Jews over 22 years of age	28·5	29·2	30·4	32·0	32·0
West End Jews under 22 years of age	27·5	28·3	29·6	30·0	32·8
East End Jews over 22 years of age	25·2	27·5	27·9	29·2	32·0
East End Jews under 22 years of age	24·0	26·6	27·7	29·2	31·5
West End Jewesses	25·2	26·8	28·5	29·6	32·0
East End Jewesses	24·6	26·1	27·5	28·5	29·5

Here we observe that while the cranial index of the West End Jews indicates dolichocephalism, and, therefore, it would seem inferiority, their "foundation" index would seem to go on all fours with their presumed superiority in intellectual capacity. We find, too, that this index increases slightly with age, that it is inferior among females in the West End, but only slightly so among females in the East. So far then as any knocking at the skull can give any clue of the value of what is within, the "foundation" index would seem to answer that purpose much better than the cranial index, and is much simpler to get at than Mr. Galton's tridimensional "knowledge box." We append a table which gives at once by merely reading off in centimetres length and breadth of skull, both "cranial" index and "foundation" index.

"Cranial" and "Foundation" Indexes given in centimetres.

Length.	Breadth.						
	14	14½	15	15½	16	16½	17
17	82·3	85·4	88·2	91·3	94·2	97·0	100·0
	23·8	24·6	25·5	26·4	27·2	28·0	28·9
17½	79·9	82·8	85·5	88·5	91·3	94·2	97·1
	24·5	25·4	26·2	27·2	28·0	28·9	29·7
18	77·7	80·5	83·4	86·2	88·9	91·6	96·4
	25·2	26·1	27·0	27·9	28·7	29·7	30·6
18½	75·7	78·3	81·0	83·7	86·4	89·2	91·9
	25·9	26·8	27·7	28·7	28·6	30·5	31·4
19	73·6	76·3	79·9	81·7	84·3	86·7	89·5
	26·6	27·5	28·5	29·5	30·4	31·3	32·3
19½	71·8	73·7	76·9	79·5	82·1	84·6	87·2
	27·3	28·3	29·2	30·4	31·2	32·2	33·1
20	70·0	72·5	75·0	77·5	80·0	82·5	85·0
	28·0	29·0	30·0	31·0	32·0	33·0	34·0
20½	68·3	70·7	72·0	75·7	78·0	80·0	82·7
	23·8	29·7	30·7	31·8	32·8	33·8	34·8

Example:—To find cranial index of skull 15 cm. broad by 19 cm. long, look down vertical column headed 15 and along horizontal line opposite figure 19, and read off cranial index 79·9 and foundation index 28·5 (really 285 square cm.).

These seem to us the main points of interest elicited during the progress of our inquiries, and we now have the pleasure of submitting them to the Anthropological Institute for comment and discussion.

Description of Plate IV.

This Plate represents in graphic form the results given in Table I. The black vertical lines represent the 5th, 25th, 50th, 75th and 95th percentiles. The various curves cross these at points showing the measurements reached by 95, 75, 50, 25 and 5 per cent. of the subjects measured. The letters attached to either end of each curve indicate the different classes whose measurements are given.

HM (continuous thick curve) = Health Exhibition results for males.

HF (continuous thin) = Health Exhibition results for females.

AJM (thick bars) = All Jews.

AJF (thin bars) = All Jewesses.

WJM (heavy stars) = West End Jews.

WJF (light stars) = West End Jewesses.

EJM (heavy dots) = East End Jews.

EJF (light dots) = East End Jewesses.

S (dots and bars) = Sephardim or Spanish Jews.

Thus to take an example: if we arranged 100 of each of these classes in a row from the shortest to the tallest, the seventy-fifth in each company would have the height shown by the measurement indicated by the corresponding curve at the seventy-fifth percentile of the lowest set of curves; *e.g.* the seventy-fifth of the East End Jews would be exactly 66 inches, of the Sephardim exactly 68, and so on with the rest.

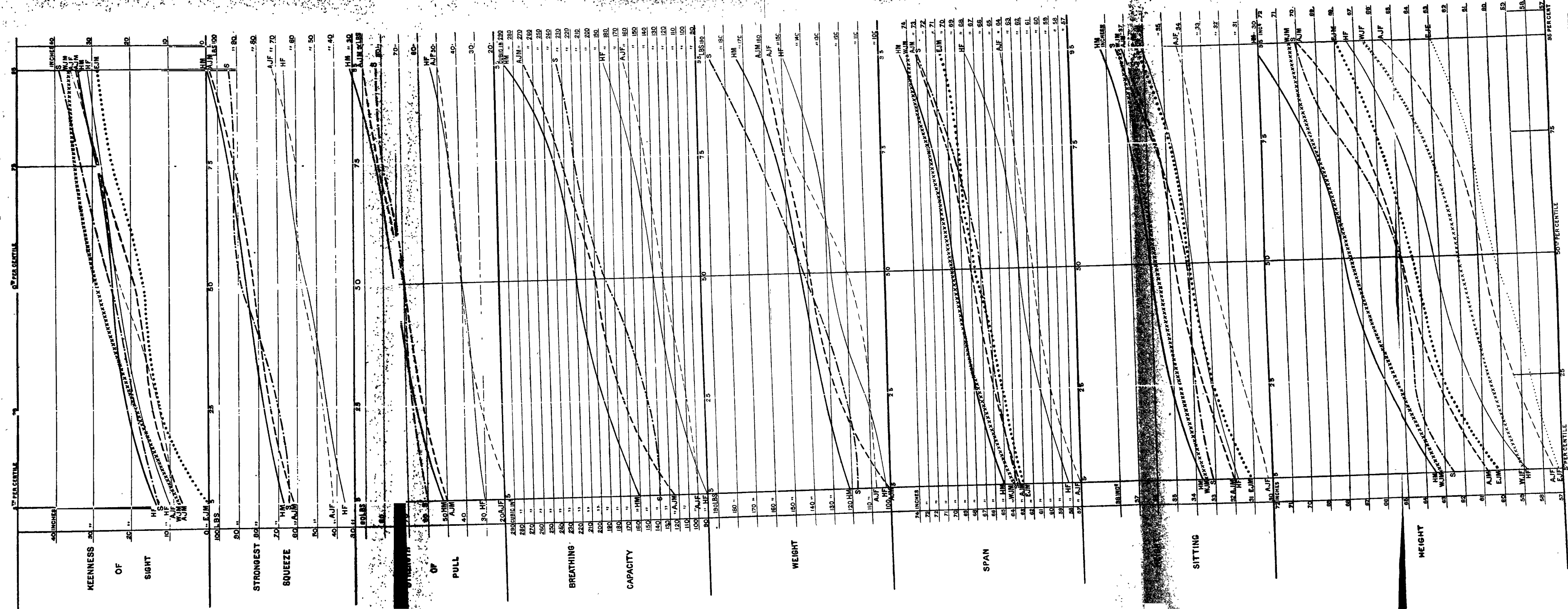
DISCUSSION.

Mr. BRABROOK said that, as he had been Secretary to the Anthropometric Committee of the British Association for several years, it was a satisfaction to him to find that the conclusions of that Committee as to the importance of nurture were borne out by the patient and painstaking investigations of the authors of the paper. With regard to the comparison between Mr. Galton's Health Exhibition statistics and those in the paper, it was to be borne in mind that those who visited the Exhibition and presented themselves for measurement would in the main be healthy persons in good spirits with money in their pockets, and would therefore be rather above than below the average of persons of the same class of life, and while the same might be true in some degree of the Jews referred to in the paper it would not be so to the same extent. This consideration might slightly modify the differences observed. It was in his recollection of the conclusions to which his Committee came that they found the tests of strength by pulling to give doubtful results, and he was therefore disposed to set those aside; but the other observations of Messrs. Jacobs and Spielman appeared to him to be very interesting and valuable.

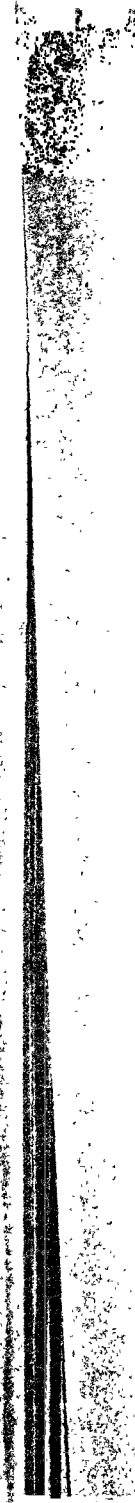
Prof. RUPERT JONES asked if the measured visitors of the Health Exhibition referred to may not have included a sufficient number of Jews and Jewesses to have modified the value of the results when taken merely as for English people.

Dr. PHENÉ and Dr. GARSON also joined in the discussion.

Mr. JACOBS in reply mentioned that very few, if any, Jewish visitors of the Health Exhibition visited Mr. Galton's Laboratory. It was possible that the class of Jews which had been termed in the paper "West End Jews" were slightly better nurtured than the average visitor of the Exhibition.



GRAPHIC REPRESENTATION OF THE RESULTS OF MESSRS. JACOBS AND SPIELMAN'S MEASUREMENTS OF ENGLISH JEWS COMPARED WITH MR. GALTON'S MEASUREMENTS AT THE HEALTH EXHIBITION.



ANTHROPOLOGICAL MISCELLANEA.

RACE AND LANGUAGE.

(Journ. of the Anthrop. Inst., vol. xviii, page 439).

Either Mr. Holmes has misunderstood the Duke of Argyll, or the Duke, Captain Burt.

The passage apparently referred to is as follows :—

“The Irish tongue was, I may say lately, universal even in many parts of the Lowlands; and I have heard it from several in Edinburgh, that before the Union, it was the language of the Shire of Fife, although that county be separated from the capital only by the Frith of Forth, an arm of the sea, which from thence is but seven miles over; and, as a proof, they told me, after that event (the Union) it became one condition of an indenture, when a youth of either sex was to be bound on the Edinburgh side of the water, that the apprentice should be taught the English tongue.”—“Letters from a Gentleman in the North of Scotland.” London, 1822. Page 158.

In that edition, there is a footnote, expressing doubt as to the correctness of the statement; but disproof would obviously be hard. Folk-speech usually lingers long after the official language has changed. James IV. is an authenticated instance of a man in Fife speaking Gaelic. He seems to have understood King-craft better than some recent writers who have pictured the later Kings of Scots siding completely with one portion of their subjects.

From a variety of sources comes evidence that Gaelic was spoken in Galloway till about the middle of the 18th century. The whole question of speech-changing in the British Isles is most interesting, but wants viewing achromatically. In Scotland, we may begin by debarrassing ourselves of that “great magic transformation scene” which some associate with a refugee Saxness; and, throughout the Union, we must recognise that change of speech, or even change of sovereignty, implies no change of race.

WALTER M. T. CAMPBELL.

1st June, 1889.

NOTE by MR. A. W. HOWITT, as to DESCENT in the DIERI TRIBE.

A letter from Mr. Howitt to Dr. Tylor, September 21st, 1888, contains the following remarks, which are communicated to the Anthropological Institute at the writer's desire. It should be explained that Mr. Frazer's communication ("Journ. Anthropol. Inst.," vol. xvii, p. 185), was sent in correction of a statement by Mr. Howitt ("Journ. Anthropol. Inst.," vol. xiii, p. 457), that descent in the Dieyerie tribe is uterine. Mr. Howitt now produces evidence that his original statement was correct.

"You may remember a notice which was sent by Mr. Frazer to the 'Journ. Anthropol. Inst.,' conveying a statement by Gason that with the Dieri the sons take the father's murdu and the girls that of the mother. When I saw this I could hardly believe my eyes, because my own knowledge was against this, as well as the statements made to me by the missionaries in the Dieri country. I thereupon wrote to the Lutheran Mission at Kopperamana, requesting that further enquiries might be made. The reply was that the Dieri said all the children, both girls and boys, take the murdu of the mother and not of the father. In order to further check the statement, I again wrote to the missionary asking him to enquire from the Dieri concerning a certain man who was the head man of the tribe when I knew it, and of whom Gason has written much in giving me information about the Dieri. This man I knew to have been of the Manyura (*Portulacca oleracea*) murdu. In reply I hear now that: (1.) His murdu was Manyura; (2.) His mother's murdu was Manyura; (3.) His father's murdu was Warnyati (Emu).

"I also learned from a correspondent who is well acquainted with the tribe which adjoins the Dieri in the south-west that with them the children are all of the same murdu as their mother. He sent me a list of a number of the tribespeople which showed this conclusively. I am now quite sure that Gason has made a mistake, but I must say for him that it is about the only one I have found out, except a few inaccuracies in some of the less common relationship terms."

SEPULCHREAL CHAMBERS in TUMULI in FINISTÈRE.

We have received, through Admiral Tremlett, particulars of the discovery in tumuli by M. de Chatélier of two unopened sepulchral chambers of peculiar construction. The first is at Panker, Plonbalanec, Finistère, and is a chamber, 3 metres long, 1 metre 54 broad, and 2 metres 60 high, the walls being of uncemented masonry and the roof consisting of a single large slab; round the bottom of the chamber is a ledge or bench of dry masonry, about a foot wide and high; which had supported thick planks of oak forming a floor, this was thickly covered with oak leaves, amongst which were the

incinerated remains of one body, two small bronze daggers, and a small two-handed urn, which had originally been covered with a coarse cloth, particles of which still adhered to it. The second is at Kergounion, near Guissény, Finistère, and is also of uncemented masonry, covered with a single stone; the chamber is 2 metres 40 long, 1 metre 45 broad, and 1 metre 45 high; it had an oak floor but not a ledge of masonry to support it, and there was also an oak ceiling covered with clay at about two thirds of the height of the chamber; the floor was covered with sea sand on which reposed a skeleton: near its waist were a bronze dagger and two bronze plaques, near the head was a vase with four handles, and on the forehead a circle of bronze; the skull had been trepanned, and the operation had apparently been successful. We do not remember any other instance of a wooden ceiling being found under a capstone in a chamber of this kind or dolmen.

A. L. L.

INTERNATIONAL CONGRESS of PREHISTORIC ANTHROPOLOGY and
ARCHÆOLOGY.

The Tenth Session of the "Congrès International d'Anthropologie et d'Archéologie Préhistoriques," will be held in Paris, at the Collège de France, from August 19th to 26th, under the Presidency of Professor A. de Quatrefages.

The following is the Programme of subjects for discussion:—

Question I.—Creusement et remplissage des vallées, remplissage des cavernes, dans leurs rapports avec l'ancienneté de l'homme.

Question II.—Périodicité des phénomènes glaciaires.

Question III.—L'art dans les alluvions et dans les cavernes. Valeur des classifications paléontologiques et archéologiques à l'époque quaternaire.

Question IV.—Relations chronologiques entre les civilisations de la pierre, du bronze et du fer.

Question V.—Relations entre les civilisations de Hallstadt et des autres stations danubiennes et celles de Mycènes, de Tirynthe, d'Issarlik et du Caucase.

Question VI.—Examen critique des crânes et ossements quaternaires signalés dans les quinze dernières années.—Éléments ethniques propres aux divers âges de la pierre, du bronze et du fer, dans l'Europe centrale et occidentale.

Question VII.—Survivances ethnographiques pouvant jeter quelque lumière sur l'état des populations primitives de l'Europe centrale et occidentale.

Question VIII.—Jusqu'à quel point les analogies d'ordre archéologique et ethnographique peuvent-elles autoriser l'hypothèse de relation ou de migrations préhistoriques?

Other questions besides those in this programme may be discussed, but notice of bringing such subjects forward should be sent in advance to the General Secretary of the Organizing Committee, Dr. E. T. Hamy, 40, Rue de Lübeck, Paris.

The subscription is fixed, as on former occasions, at twelve francs. Those who desire to join the Congress should send this amount to the Treasurer, the Baron de Baye, 58, Avenue de la Grande-Armée, Paris.

FRENCH ASSOCIATION *for the* ADVANCEMENT OF SCIENCE.

The "Association Française pour l'Avancement des Sciences" will hold its annual session from August 8 to 14, under the Presidency of Professor H. de Lacaze Duthiers. The usual custom of meeting in the provinces will this year be departed from, in consequence of the Exhibition, and the session will be held in Paris. The offices are at 28, Rue Serpente, Paris, and M. A. Fournier is the Secretary.

The BRITISH ASSOCIATION.

The fifty-ninth annual meeting of the British Association for the Advancement of Science will be held at Newcastle-upon-Tyne, commencing on Wednesday, September 11, under the Presidency of Professor W. H. Flower, C.B., LL.D., F.R.S., &c. The Section of Anthropology (Section H) will be presided over by Professor Sir W. Turner, M.B., LL.D., F.R.S., L. & E. The Vice-President of this section is Professor G. H. Philipson, M.A., M.D., D.C.L., F.R.C.P. The Secretaries are Mr. G. W. Bloxam, M.A. (Recorder); Dr. J. G. Garson, Vice-President of the Anthropological Institute; and Mr. J. Rutherford Morison. Communications, accompanied by the necessary abstracts for publication in the Report, should be sent as early as possible to the General Secretaries, British Association, 22, Albemarle Street, W.

PROFESSOR WEISMANN'S ESSAYS.

It is now four years since Mr. A. E. Shipley called attention in the "Nineteenth Century" to Prof. Weismann's Essays on Heredity. In response to the interest which has been aroused a collection of the essays has been translated under the care of Mr. E. B. Poulton, of Oxford, and will form the second volume of the "Series of Translations of Foreign Biological Memoirs," which the Clarendon Press is publishing.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

APRIL 9TH, 1889.

Professor FLOWER, C.B., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of F. HAVERFIELD, Esq., M.A., of Lancing College, was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From MESSRS. TRÜBNER & Co.—Trübner's Record. No. 243.

From the AUTHOR.—Note on a case of Elephantiasis Arabum. By R. W. Felkin, M.D.

— The Nègri Sëmbilan, their origin and constitution. By Martin Lister.

— Sul Cranio di un Idiota. By Michele Centonze.

— L'Osso Bregmatico (Antiepilepticum); Studio di Michele Cnetonze.

— Tauromachia. By Giulio Barroil.

— Sagn og Fortællinger fra Angmagsalik, samlede af G. Holm.

From the AUTHOR.—*Ethnologisk Skizze af Angmagsalikerne af G. Holm.* 1887.

From the ACADEMY.—*Bulletin International de l'Académie des Sciences de Cracovie. Comptes Rendus des Séances de l'année* 1889.

From the ASSOCIATION.—*Proceedings of the Geologists' Association.* Vol. xi. No. 1. February, 1889.

— *Journal of the Royal Historical and Archæological Association of Ireland.* Vol. viii. Fourth Series. No. 77.

From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—*The Scottish Geographical Magazine.* Vol. v. No. 4. April, 1889.

From the SOCIETY.—*Proceedings of the Royal Society.* Vol. xlv. No. 277.

— *Proceedings of the Royal Geographical Society.* Vol. xi. No. 4. April, 1889.

— *Proceedings of the Society of Biblical Archæology.* Vol. xi. Part 5. March, 1889.

— *Proceedings of the Society of Antiquaries of Scotland.* 1887-88.

— *Journal of the Society of Arts.* Nos. 1897, 1898.

From the EDITOR.—*Journal of Mental Science.* No. 113. April, 1889.

— *Nature.* Nos. 1013, 1014.

— *Science.* Nos. 317-321.

— *American Antiquarian.* Vol. xi. No. 2. March, 1889.

— *Revue Scientifique.* Tome xliii. Nos. 13, 14.

— *Revue d'Ethnographie.* Tome vii. No. 5. Septembre—Octobre, 1888.

EXHIBITION of the SKULLS of a BURMESE DACOIT
and of a REBEL CHINESE MANDARIN.

By CAPTAIN E. S. HASTINGS.

ONE of the skulls exhibited was that of Po Tok, a celebrated Burman Dacoit leader, who was a native of Nabuain, a village on the northern border of the Myniggan District, and close to the Ava district. He was the son of the Thugyi, or headman of the village. After his father lost his thugyi-ship, about 1882, Po Tok became a professional dacoit, and at the time of the annexation of Upper Burma, he was recognised as a daring leader. After giving great trouble to the military and police, he was shot in April, 1888. Po Tok was a man of considerably greater genius and audacity than most of his fellow-countrymen.

and he was universally feared for his inhumanity and rapacity. At the time of his death he was about thirty years of age.

The second skull exhibited by Captain Hastings, was that of a military mandarin, a native of one of the northern provinces of China. His real name was not known, but the name of Sze Chuen was given to him by the Burmese from the fact that the bulk of his followers in his last expedition were recruited in that province of Yunan. Sze Chuen had been of high military rank, and a Mandarin of the Blue Button, but was degraded and exiled to Yunan for unauthorized military enterprise. At the request of the Viceroy of Yunan he defended the Chinese merchants in Bhamo from attacks by the Kachins, but having quarrelled with these merchants, he threatened to sack the town. With a following of two hundred Chinamen from the province of Sze Chuen, and five hundred Kachins from the hills, he defended himself, and held Bhamo for a long time against the Burmese. After a siege of several months, during which Sze Chuen was distinguished by much bravery and moderation, he and his lieutenant, finding their position hopeless, disembowelled themselves in the Shind temple. The Burmese commander shot the corpse of Sze Chuen through the head, and then ordered it to be crucified. On the British occupation of Bhamo in December, 1885, Captain Hastings secured the skull. Sze Chuen was about forty years of age at the time of his suicide.

DISCUSSION.

Mr. WALHOUSE asked if Captain Hastings was aware of any superstition or beliefs, amongst the Burmese, of influence exercised after death by such characters as Po Tok. In Southern India notorious dacoits and robbers, as well as men of unusually wicked or violent character, who had made themselves feared in their neighbourhood, were believed after death, especially if it were violent or untimely, to become Bhutas (demons or malicious goblins), always intent on working mischief and bringing about misfortune. Sudden illnesses, death, diseases to cattle, blight of crops, and the like, are attributed to them. And in proportion as they were cruel and dreaded in life, by so much are they believed to become powerful and malignant when dead. Many years ago a gang of dacoits spread terror in the southern districts of Madras; the leader was especially ruthless, and when at last he was taken and executed, the popular fear of his Bhuta-malignity was such that for months after nearly half the children born in the region he ravaged were named after him, this being looked upon as a propitiation, and averting his evil influence from a house in which there was a child bearing his name. This belief in an evil influence after death seems somewhat analogous to the vampire superstition of Eastern Europe.

The Rev. W. D. MORRISON remarked, with reference to Captain Hastings' interesting account of the dacoit leader, whose skull he had exhibited, that as yet little or nothing had been done in England to test the accuracy of the contention that in most cases the skulls and physical structure of criminals constitute remarkable points of difference between them and the ordinary man. A school of anthropologists has recently arisen in Italy, which maintains that there is a distinctly criminal type of man who may be known from the normal man by certain definite physical characteristics. This criminal type is said to present anomalies in the structure of the skull, the eyes, the ears, the lower jaw, the arms, &c., and to occupy in the scale of life an intermediate position between the savage and the madman. Atavism and physical degeneracy are accounted the two leading features of this abnormal type. The chief advocate of these ideas is Professor Lombroso, of Turin, and in the last edition of his large work, *L'Uomo Delinquente*, he brings forward an immense number of facts and figures in support of his thesis. Not only in Italy, but also in France and Germany, Lombroso's conclusions have received a considerable amount of support, and a Congress devoted to criminal anthropology is to be held this year in Paris. The speaker had made a considerable number of investigations in this field on Lombroso's lines, but could not say that he had met with the same number of physical anomalies as Lombroso and his disciples had. Mr. Morrison considered that Lombroso's method had two defects. In the first place he compares the physical structure of criminals with the physical structure of soldiers. But soldiers are not a fair test, for they are the pick of the population, and not average types. In the second place he exaggerates the difference of bodily structure between the civilized and uncivilized man. According to Ratzel this difference "is more a difference in mode of life, in mental disposition (*Anlage*), in historical situation, than in physical structure." But the whole question demands fuller inquiry, and it would be most interesting to compare the results of Mr. Galton's anthropometrical investigations at South Kensington with similar results obtained in a similar manner from the examination of undoubted criminals.

Professor FLOWER, Mr. H. H. HOWORTH, and Mr. ATKINSON also took part in the Discussion.

Captain HASTINGS, in replying, said he was not aware of any superstitions connected with Po Tok's death.

The following Paper was read by the Secretary:—

*THE MAORIS OF NEW ZEALAND.*¹

By EDWARD TREGGAR, ESQ.

Tribes.

1. The natives are divided into tribes and sub-tribes; but the tribe has somewhat of a clannish character, on account of common ancestry. The tribe (*iwi*) is divided into sub-tribes (*hapu*). The principal tribes are *Ngapuhi*, *Arawa*, *Rarawa*, *Ngatiruanui*, *Ngatiraukawa*, *Ngatihaua*, *Waikato*, *Ngatimaru*, *Ngatimamoe*, &c. Some of the tribes have from long defeat dwindled down almost to as small proportions as a large *hapu*.

2. The tribes are not distinguished by differences of dress, nor in the mode of wearing the hair; slight differences do exist, but are not to be called tribal.

3. A very few of the tribal or sub-tribal names are derived from animals or objects; even in these few cases, I think the name has been that of a man; thus *Raukawa*, a plant, then, a man called after the plant *Raukawa*, then the tribe his posterity called *Ngatiraukawa* (*Ngati* = children of, descendants). The *Arawa* tribe are an exception; *Arawa* means "shark," *Waikato* = "flowing water"; but the *Arawas* have no "totem" respect for the shark.

4. The members of a tribe do not regard as sacred the animal or plant from which they may have derived their name, nor do they refuse to kill or eat it.

5. They have plenty of stories as to the origin of tribes, but they are to be found in the published works of Grey, Shortland, White, and others.

Birth, descent, adoption.—7. In ordinary cases or with common women there are no birth-ceremonies, but in cases of difficult parturition a *tohunga*, or priest, is in attendance, and he, together with the woman, repeats the *Karakia* (invocation) of *Hine-te-iwa*; it commences—

"Weave, weave the mat,
Couch for my unborn child,"

or else the invocation commencing "Oh *Hine-te-iwa iwa*, release *Tuhuruhuru*." These were celebrated charms of great antiquity.

¹ This paper has been written in reply to the code of "Questions" issued by Mr. J. G. Frazer, and published in the "Journ. Anthropol. Inst.," vol. xviii, p. 431. The paragraphs are numbered to correspond with the original questions.

While the *Karakia* was being chanted, the father had to plunge into the river. If the child is not then born, the ancestral line, up to *rangi* (sky) and *tiki* (Creator), must be invoked, *i.e.*, if a boy is being born; if a girl, the mother's line of ancestors.

8. The mother is not secluded before birth; but she is *tapu* afterwards, until made *noa*, or "common" by ceremonies. The ceremony was performed about a month after birth, the mother being secluded till then, lest she might *tapu* any of the people engaged in *kumara* (sweet potato) planting. There were two different forms of the ceremony:—one was the *tua*; in this form, two fires were kindled ("new-fires" of course—made by friction of wood), one for the gods, one for the priest-chieftainess. Then the *tohunga* (priest) repeated the incantation beginning "Breathe quick thy lung," &c. Fern-root is cooked on the fire for the *atua* (gods); this is waved over the child by the priest, and afterwards placed in some sacred spot. The female tribe-priest (if there is one) waves the fern-root cooked on her fire, and touches the baby in several places, pretends to eat the fern-root, but does not; it is laid in a sacred place. If there is no female priest-chief (*ariki*), a figure is made of weeds to represent her. This removes *tapu*.

In the other ceremony, when the *tuapana* is chanted, it removes the *tapu* from mother and child. A number of clay balls are made by the priest, and little mounds near them; each mound is named for a god, and each clay ball for an ancestral chief. The priest then took a branch of *karamu* or of *kawa*, parted it, and bound half round the baby's waist, chanting the invocation called *tuapana*, beginning "There are the mounds risen up," &c. When this is finished, he sprinkles mother and child with water by means of a branch, and chants again. When the song is finished, he plants the branch, and if it grows the child will be a warrior. Then three ovens are made, one for the mother, one for the priests, one for the gods; food is cooked in them. A number of pieces of pumice are placed in a row, and named for the child's ancestors; then the priests offer food (from the god's oven) to each stone in turn, with the incantation beginning, "There is your food," &c. (the gods ate the "soul" of the food); then the *tapu* was removed, and the mother and child free.

There is no rule as to the mother's food during pregnancy.

9. There is no rule for the husband's conduct, nor is he subjected to any special treatment; there is no trace of the *couvade*, &c.

10. The child is named at the time of the purification spoken of above; this is called *iri-iri*, or baptism, sometimes, but is really more a "churching" than a "christening." However,

sometimes, with a great chief, the father, mother, and head of tribe went with the priest, who waded out into mid-stream with the baby and sprinkled him, reciting the incantation of, "Baptised in the waters of Tu (the war-god). Be thou strong," &c. The priest sometimes, at a particular time, repeats slowly, one by one, the names of the child's ancestors, and if the baby sneezes, that particular name just being recited is chosen; but most Maoris are named from "nickname" sources, such as personal peculiarities of self or parents, local names, "sounding sea," "angry sky," &c. There is never any godfather or god-mother.

11. There are no special observances in regard to infants whose elder brothers or sisters have died previously.

12. Infanticide, though common in Eastern Polynesia, is not so in New Zealand; there is plenty of room for all, and the tribe wanted plenty of boys for war, and girls as breeders. The Maoris idolize children and spoil them dreadfully.

13. When the father and mother belong to different sub-tribes, the father's landed property went to the male children, the mother's to the female, but all the children belonged to both tribes. If a girl married a chief of an utterly strange tribe, she lost claim to her mother's land, unless she could induce her husband to stay with her tribe, in that case she lost nothing, for the tribe gained a fighting man. The rules, however, are very intricate, and cannot be fully discussed in this place.

14. Adoption is sometimes practised, but is not common as in Eastern Polynesia. Children were generally adopted by close relations, such as uncles, &c. When a woman has lost her title to her mother's land by marrying a stranger, her brothers can secure her share for her children by adopting them.

Puberty.—15. There is no special ceremony performed on lads at puberty, except in the case of the eldest son of the head chief of a tribe. He has to be initiated into the secrets of all priestcraft and witchcraft as *Ariki* of the people. A fast is proclaimed, and the people are not allowed to eat, from dawn till after dark. A shed built of palm (*nikau* = *Areca sapida*) branches is made with an equal number of sticks on each side (no odd sticks anywhere), and the makers of the shed must all be chiefs. In this shed the old *ariki* sleeps the first night, and at dawn the young man is sent to him naked. (Naked, for fear garments defiled by having touched food should be present at sacred ceremonies.) The young chief is urged to sleep, and the priest watches for omens (*takiri*) of jerkins. If an arm or leg jerk inwards it indicates luck, but if it jerk outwards the lad cannot be taught. Then the old man repeats the incantation beginning, "From whence come all things," &c., and afterwards

begins to teach secrets. This is what was done in New Zealand; in the old land whence they came legend says they had a *whare-kura* or college in which the young men were taught astronomy, agriculture, &c.—they were very sacred in this. But there has been no *whare-kura* in New Zealand.¹

A young chief had successfully graduated in this college if, on completion of his course, a slave being brought in front of him, he could strike him dead by repeating a charm. It may be that this statement will be disbelieved, but tapu is an awful weapon. I have seen a strong young man die the same day he was tapued; the victims die under it as though their strength ran out as water. Yet I never knew a *great* wizard.

16. There is, at these rites, no pretence of killing the lad and then restoring him to life.

17. During the initiatory rites, women could not go near a young chief; I do not know if seeing was prohibited, but it would certainly be avoided.

18. They do not practise circumcision, nor do they knock out, chip, or file the teeth, bore the nose, distend the ears, insert rings in the lips, or perform any other mutilations of a similar nature.

19. They all tattoo, but not at puberty—the full tattoo of a warrior took place after his distinguishing himself in war. The tattooing of a slave's face was only a vile practice, introduced lately for the sake of selling dried heads (fully tattooed), as European curios; as Maining was told by the trader, "Eds was getting scarce." The patterns were tattooed, not incised. The men are tattooed on face and posteriors—women, a few lines on breast, slight pattern on lips and chin, and (sometimes in old days) on back part of leg (calf). Some women in South Island were tattooed on face like men; very rare. The drawings *made by me* for White's, vol. 1, "Ancient History of Maori," are good guides—the curved pattern (*Mataora*) never varies. There is a good example on pp. 331 and 332 of "Library of Entertaining Knowledge—the New Zealanders." But the real point is that on the brow *just between the eyes* is a difference which is individual, and is the "signum" of each (or was anciently). I say what I think of tattooing in "Ancient Alphabets in Polynesia."

An old legend states that *Mataora* went down to *Po* (Hades), and was there tattooed by his ancestors, who performed the actual operation on him at his request, because the marks were only *painted* on men's faces before that time, and would wash off. I think there is no truth whatever in the tradition;

¹ I have heard that there was a *Wharekura* at a place called Whanganui, but it was not *the* Wharekura.

tattooing is an extremely ancient practice, and I believe that I can prove etymologically that the *curves* of Maori tattooing are *snake-coils*, which they must have learnt far away from Polynesia—and even these are later than the *Mokokuri* tattoo of triple lines.

20. When men are having their faces tattooed, the priest or the persons sitting by, sing the "tattoo song," beginning "In a group we sit and eat together." The best Maori version, commencing, "*E noho ana, e kai-tahi ana*," may be found in Grey's poems (*Hakirara o nga Maori*), p. 57. If a girl, the song, "Recline, my daughter, to mark thee" (*Takoto ra, e hine*), Grey, p. 58.

A person being tattooed is prohibited from eating fish, unless the fish (sacred to *Tangaroa*, the sea god) is held up to see the tattooing. No gourd or calabash must be eaten, if children have playfully made tattooing marks thereon. The priest and all the people are *tapu* (on account of the blood), during the operation, but the ceremony of making native ovens with hot stones is gone through—priest's oven, gods' oven, oven for the tattooed man. The priest handles one of the hot stones of the gods' oven, thus transferring the *tapu* to their food, which is hung up in a tree. After the eating, all are *noa* (common, not *tapu*).

21. Answered above.

22. I do not think that there is any mark distinguishing tribes, &c., still we do not know everything (probably never will now) about the full signification of *tatau*.

23. I never heard of any ceremonies performed on girls at puberty. I think I should have been sure to have known.

24. *Ibid*.

25. Women were not secluded at menstruation, but they were *tapu*, and would not be allowed to touch food that was being cooked—some of the men might eat it by accident, and that would *tapu* them instantly.

26. They thought that the *menses* contained the germs of unformed infants—the seed of humanity—the germs became the malicious deities called *Kahu Kahu*, of which I will treat under *demons*. If a man touched her he would be *tapu*, if he had connection or ate food cooked by her, *tapu* "an inch thick."

Marriage.—27. There is no absolute law as to marrying within or without one's tribe—that is, no law *personally* affecting the man or woman—only as to the land.

28 and 29. As a general rule the girls had great license in the way of lovers. I don't think the young woman knew when she *was* a virgin, for she had love affairs with the boys from her cradle. This does not apply of course to *every* individual case—

some girls are born proud, and either kept to one sweetheart or had none, but this was rare. When she married it became very different; she was then *tapu* to her husband, and woe betide her if she was guilty of light conduct.

30. Anyone outside brother and sister could marry, although marriage of first cousins was greatly disliked. They seem aware of the weakening effect of the "in-breeding." There are cases in which (especially in legend) even these bonds were broken, but not as proper social practice. A man had to be a very strong and powerful chief who could dare to tamper with daughter, daughter-in-law, sister, &c., and then he earned widespread denunciation for himself and stigma for the offspring.

31. A man, if powerful and wealthy, might have several wives; but as the tribe supported all in food, the mean men would be prevented, in some way or another, from keeping large establishments.

32. There is no polyandry, marriage relations are strict, unless the husband gave consent, as for a guest, &c.; but I know of one instance, and only one in ancient legend, wherein a woman (she was a goddess or demi-goddess), had not only two husbands at the same time, but these two husbands were brothers.

33. Polygamy is caused in some cases simply by the desire for the women, also by early betrothals, and having to take the widow of a deceased brother; alliances with other great chiefs, or a love of display by a show off of a big retinue; as each wife had her separate plantation, *Mara*, the more wives a chief had the more able was he to entertain guests; but there was no one cause in particular; the wives worked, and so did the chief himself, even the greatest.

34. Betrothal of children was common among people of birth. If no betrothal, there was generally a lot of talk and squabbling, every one in the tribe thinking he had a right to interfere, till at last the young couple, if lovers, would flee to the bush until their living together was agreed to. The girl generally began the courting. I have often seen the pretty little love letter fall at the feet of a lover—it was a little bit of flax made into a sort of half knot—"yes" was made by pulling the knot tight—"no," by leaving the "matrimonial noose" alone. Now, I am sorry to say, it is often thrown as an invitation for love-making of an improper character. Sometimes in the *Whare-Matoro* (the wooing-house), a building in which the young of both sexes assembled for play, songs, dances, &c., there would be at stated times a meeting; when the fires burnt low, a girl would stand up in the dark and say, "I love so and so, I want him for my husband." If he coughed (sign of assent), or said "yes"—it was well—if only dead silence, she covered her head

with her robe and was ashamed. This was not often, as she generally had managed to ascertain (either by her own inquiry or by sending a girl friend) if the proposal was acceptable. On the other hand, sometimes a mother would attend and say, "I want so and so for my son." If not acceptable, there was generally mocking, and she was told to let the young people have their house (the wooing-house) to themselves. Sometimes if the unbetrothed pair had not secured the consent of the parents, a late suitor would appear on the scene, and the poor girl got almost hauled to death between them all. One would get a leg, another an arm, another the hair, &c.—girls have been injured for life in these disputes, or even murdered by the losing party.

There was generally a show of force, more or less severe; but after she had been taken away, the parents came to see the pair, and when presents had been interchanged, all were satisfied. If the couple had been betrothed at infancy there was no ceremony but a feast of the relatives and tribes of both, the bride was clothed in new mats and handed over to her husband, by whom gifts were made. "Marriage" was merely *moe-tahi*, "a sleeping together."

35. Often the husband went to live with his wife's people—not, of course, if he was a great chief, or had several wives. If he went to live with his wife's people, he was considered as one of her tribe, and fought on their side—sometimes she would leave him and go back to her own people if he did not.

36. There is no preparation for marriage on the part of either bride or bridegroom, by fasting, bleeding, or any other way.

37. Answered above.

38. The bride is not veiled.

39. Nor is either she or the bridegroom ever represented at the marriage ceremony by a proxy or dummy.

40. There is nothing corresponding to bridesmaids or best men.

41. Nor are any ceremonies observed by bride and bridegroom on the day after marriage.

42. A man cohabits with his wife immediately after marriage.

43. And lives openly with her.

44. The Maoris had no custom which required or permitted that the wife should be touched by any person other than her husband.

45. Men abstain from women at menstruation, pregnancy, after childbirth till the child is weaned, and previous to and during hunting, fishing, and war.

46. As quite an occasional thing a man who had *many* wives would lend one of them to a guest whom he wished to honour greatly. He would not let his first or chief wife be touched,

but one of the inferior ones perhaps. He could let a guest have one of the girls. In Hawaii, whether the woman was married or single, she would have been thought very churlish and boorish if she refused such a slight favour as connection with any male friend of the family.

46A. A widow went to her husband's next brother, unless he chose to forego his right. Her proper course was to strangle herself.

47. They may all speak to and look at each other—there was no restriction.

Disease and Death.—49. They believe that disease is caused by the entry of an evil spirit into the body; or at all events the anger of some deity or demon (*Atua*). Even slight sicknesses were supposed thus to be caused. Said a great chief once, "My *Atua* is a boil."

50. And they try to effect a cure by exorcisms, &c., made by the priest. Rheumatism, however, they cured by means of the many hot springs (charged with sulphur, &c.), in parts of the country. Poisoning with *Tutu* (*Coriaria ruscifolia*) berries they cured by holding the patients over the smoke of weeds and leaves. Poisoning by eating the kernels of *Karaka* (*Corynocarpus levigata*) by burying the patient in the earth up to his neck. Bones were well set in splints of bark; wounds were generally left to themselves after they had extracted any broken pieces of spear or bone; they healed in a manner an European could hardly believe. I have seen a Maori speared with a big rafting spear (an iron-shod pole thicker than the wrist), the point driven through the breast (just under the collar-bone) and coming out at the back—in a week's time he walked fifteen miles crossing a mountain range—the wound being healed.

They also used the bark of the *Kimu* (*Dacrydium cupressinum*) beaten into a pulp as a cure for burns, when placed on the sore. Dysentery and diarrhoea were cured by chewing the leaves of *Koromiko* (*Veronica* sp.) and the *Kawakawa* (*Piper excelsum*).

There was a charm beginning "Return, oh ye gods of the land" (*Te whai kurukuru matahi*), Grey's poems, 430, for burns. The charm for broken limbs begins, "O thou *Tiki*, give me thy girdle as a bandage for this limb," said whilst the priest is binding up the fracture.

52 and 53. The ceremonies at a death were very intricate, and differed in various parts of the islands. Slaves were quietly put into a hole. Chiefs were carried when dying into some shed, as death *tapped* the house. Friends gathered when they heard the *tangi* cry (a loud vibrating wail) from the wives and relatives—then there were cuttings of the face with sharp shells or pieces of flint by the women and of the neck on one side by

the men. The hair was also cut off on one side, and sometimes a few long locks left untouched as a memorial of the departed—this was called *Pakipaki taha*. The burden of the lament was, "Go, go, we follow." The friends, who came from long distances to lament, wore wreaths of green leaves or of *lycopodium*. Sometimes the body was buried: in other parts of the country it was placed in a little house with the greenstone club, &c., of the deceased: sometimes in two pieces of a canoe placed upright together, the corpse being tied in a sitting posture on a grating through which the decomposed parts fell. At other times it was placed in a small canoe and set up in the branches of a tree. Slaves were killed sometimes and the chief wife strangled herself—these were buried with the husband. A *taro* (*Colocasia antiquorum*) root was placed in the hand of a dead child that he might have food for his journey to *Reinga*; food was also buried with a chief. The exhumation (*Uhunga*) took place from a year to two years after death. There were many most intricate ceremonies used:—The consecration of the spade with which the body was dug up, the charms for the binding up of the bones, for the scraping, for the bearers, lustrations of those engaged, "making common" those engaged in the work (*i.e.*, lifting the *tapu*). The bones were scraped, anointed, decorated, painted and set with feathers. When they had been seen and wept over by all the relatives, they were packed away in the dark ancestral burial cave, or else thrown into some inaccessible rift or deep chasm, lest some enemy might get hold of the skull, to taunt it or to use as a baler for a canoe. Fish-hooks made from the jaws, flutes, pins, &c., from the bones, were supposed to be terrible insults to the relatives—hence the secret sepulture.

54. The ghost of the departed was not feared, if the proper ceremonies had been performed. If they had not, the spirit might become a *kahukahu* (which see), though not of the worst type.

55. Persons who have touched the corpse are considered very unclean; they have to be charmed over, &c., by the priests.

56. The relations do not have to observe any special rules.

Murder.—58. Murder must be revenged by every member of the tribe until satisfaction has been obtained. A chief, when dying, generally left as his *poroaki* (last words) some reminder of revenge for his people to carry out, and would generally nominate some one person to devote himself to this especial purpose. These death orders were looked upon as sacred commands. Vengeance, or propitiation by bloodshed, could be obtained by assaulting a tribe who had nothing to do with the cause of quarrel; but, generally, the tribe or family of

the murderer was singled out for vengeance, and a vendetta declared.

59. I cannot remember any instances of compensation for homicide being permitted; there was little property to offer; "blood for blood" (somebody's—not too particular always as to whose) was the rule.

60. I do not think that any purification was needed after murder *unless* the dead body had been handled. "Murder" is not regarded in the English way. As a chief said to me, "If I go out for a morning walk with my spear, and I see a man, and I push my spear through him, *that* isn't murder—that is '*killing*.' But if I invite him to my home, give him food, tell him to sleep, and then kill him, *that* is '*murder*'" (*Kohuru*).

Property and Inheritance.—61. Land was held primarily by tribal right; but within this tribal right each free warrior of the tribe had particular rights over some portion. He could not part with the land because it was not his to give or sell, but he had better rights to certain portions than others of his tribe. He would claim by having the bones of his father or grandfather there, or that they once rested there; or by the fact of his navel-string having been cut there; or by his blood having been shed on it; or by having been cursed there; or by having helped in the war party which took the land; or by his wife being owner by descent; or by having been invited by the owners to live there. The tribe inherit either by conquest or possession—conquest mainly—but if the scattered remnant of a vanquished tribe should be allowed by the victors to return quietly and their occupation be winked at—after a certain time they have a title by occupation.

62. A man's property descends to his sons, and a woman's to her daughters. The whole of a man's movable property was his own, his arms, decorations, canoes, &c., but so constantly was the law of *muru* or plunder (made by custom, having force of laws) carried out, that a chief often had little he could really call his own, except his personal weapons, ornaments, &c., which were *tapu* by touching his sacred body. A chief could *tapu* a certain thing by saying, "That canoe is my back-bone," &c. Then, unless one was of greater power than he, it was untouched, it became really (for all practical purposes) the chief's bodily part. His house and fences, his plantations, &c., were his own till they were *muru*.

63. Well-born women may inherit property. But the title of women to lands ran out sooner than in the male line. A chief's granddaughter can claim on her grandfather's land equally with his grandsons, but on the death of *her* grandchild the land reverted to the male line. If she marries a man of another distinct

tribe and *goes with him*, she loses her land; so says the proverb, "The woman goes away and goes without her girdle."

64. The younger child never succeeds in preference to the elder, unless there is some shameful incompetency or outlawing against the latter—madness, black treachery, or something of the kind—so rare as scarcely to be worth noticing. The elder brother inherited, then the next, and next—when the brothers were dead, the land reverted to the children of the eldest.

Fire.—65. Fire is obtained by friction of wood—one pointed piece is rubbed in a groove upon a flat piece with a longitudinal motion. A little dusty fibre is scraped by this process up to one end, then this begins to smoke, and it is in the nursing of the baby-spark with tinder, &c., that art is shown. It was generally, when used for "common fire," kept lighted as long as possible, and firesticks were carried to start new fires with—but on all solemn occasions "new fire" was made. A chief, too, must have his own sacred fire to sit by, lest perchance some inferior person may have used it, or (horror of horrors!) used some of his fire to light another on which food was cooked. This would be (metaphorically) cooking the chief himself! Fires were always made new for ceremonies such as those connected with the purification after childbirth, the haircutting of a boy, the war-parties' return, &c.—in almost all ceremonies food was cooked for the gods, and of course *no* "common fire" could be used.

67. I have given the best Polynesian stories in a paper on "The Origin of Fire."

Food.—68. Certain foods are forbidden, but not as in Samoa, where almost each family has some particular food forbidden because sacred to the household god—this looks like totemism. The Maori of New Zealand ate almost everything but lizards (these being held in superstitious awe). The cuttle-fish was the property of the *Ariki* (priest-chief), and was only shared by him with another as a high honour. *Kumara*—sweet potatoe (*Convolvulus batata*)—was sacred while growing, until made common by the firstfruits being consecrated. Women were allowed to eat what the men ate, but human flesh was generally denied them.

69. The women and men ate apart. Generally each man ate apart. A little basket of food was brought to each by the women; if to a great chief, by his male slave. Eating was always done in the open air—food would *tapu* a house, and so *tapu* any one entering. I don't know *why* they don't eat together—but it is so.

70. Children generally eat with the women—scraps are thrown to them and they play round like kittens.

71. The women generally eat together, but not the men.

72. Cannibalism was common formerly. They ate their enemies, and some very wicked old ruffians would eat a slave now and then.

73. Desire for revenge was the reason given for cannibalism, cooking and eating being the greatest of insults. They had some idea, I believe, that the courage of the person eaten would come to them, but I do not think it was a leading idea—at all events with the majority it was overgrown. It is possible that scarcity of food in siege-time may have helped the practice—they had plenty of food at ordinary times. Some old Maoris declare cannibalism to be a recent invention—this is not true; it is mentioned in a very old legend, and is a world-old practice with all savages, even our own peoples: the other Polynesians, even if not cannibals, had customs pointing back to days when they, too, ate human flesh.

74. There were no special ceremonies at cannibal feasts, nor were any special vessels or implements used.

75. The use of human flesh was not confined to any class or sex, as even the women ate it sometimes.

76. If the eaten person had been a doubtful enemy, they dried his head as a trophy, and made flutes of his thigh-bones, &c.—otherwise the bones were thrown away.

77. They never drank the blood of either men or other animals as blood, but they did not avoid it particularly.

78. There are no particular occasions when the sight of blood is avoided: nor are they ever prohibited from seeing the blood of persons of the opposite sex.

79. They fasted on certain occasions; at the hair-cutting of a boy-chief all the people fast, so does the young man initiate (see above, 15). No food is cooked in the settlement the day before a war party departs, until the priest has gone through his divination by the *niu* (throwing spears of fern stalk).

80. See 73 above.

Hunting and Fishing.—81. They had no hunting in the proper sense of the term, there being no large land animals. The *moa* is not mentioned in any of their *reliable* legends; that is, not mentioned as a large bird. In a paper on the "Maori and the Moa,"¹ I have already expressed my belief that the Polynesian Maoris did not even know the *Dimornis*. Rats were hunted (the small frugivorous native rat—not the common Norwegian species brought by Europeans, and now swarming), and for this purpose roads were cut in the forest. Before they started the hunting party gathered together and sang the charm commencing "Give thanks above," &c. (*taumaha ki runga*). Two

¹ "Journ. Anthropol. Inst.," No. 63. May, 1888.

parallel lines, miles long, were cut in the bush, and traps baited with the berries of the *miro* (*Podocarpus ferruginea*), &c. Then the *Taitai i runga* was sung. When they had caught a great many they made an oven for the gods; into this a rat was put; it (the rat) was then lifted up on an altar and the *karakia* beginning "The smell is drawn out" (*Te kaha ko ia unuhanga*), was used by the priest, then other omens were made, one for the priest, one for the hunters, one for the common people (*noa*), i.e., not hunters, &c. The fishing ceremonies were far more numerous. The beach and the whole sea near would be *tapu* the day a new seine net was first wetted. The seine is *tapu* till the first fish is taken and set free—set free after a hair from the head of the priest has been put in its mouth, with a prayer that it may tempt other fish to come and be caught. The first fish caught in a new canoe was always offered to the gods as offering for the men; the second for the women—sometimes thrown back into the sea as an offering to *Tangaroa*, the ocean god. Before commencing fishing the priest (set apart for fishing charms, as another for the crop of sweet potatoes, &c.) made them fasten all the hooks in regular order along the sides of the canoe, and then commenced the long incantation, "Turn to me, turn to me, O Maru" (*Tahuri mai, tahuri mai, E Maru*). When the fishing was over and the party returned to their *Pa*, three ovens were made—one for the chiefs, one for the priest, the others for the assemblage; then the priest, holding up a fish by the gills, repeated the charm of "the fish of *Tangaroa*" commencing *Te ika, te ika, i waitotara*—and the ceremonies were over. The taking of whales, seals, &c., was very *tapu*, and woe betide the man who cut up or tasted one of these creatures till the ceremony of making the animal "common" had taken place. Some of the most tragical (legendary) events in native history arose from this sacrilege. There are no rules as to eating, speaking, &c.—except those mentioned above. They did not scarify.

83. The women and children do not observe any special rules while the men are out hunting or fishing.

85. Nor are any ceremonies observed for the purpose of appeasing the spirits of the animals and fish that have been killed. The bones are sometimes used for tools, &c., but are mostly thrown away.

Agriculture.—86. They had no ploughs, but they were careful and diligent cultivators. The ground was turned over with an instrument called *ko*, a pointed rod with a crooked foot rest some inches from the point. The *kumara* sweet potato plantations were tended with the greatest care—the plants set in rows of beautiful regularity. As the plant needs fresh gravel six inches deep

the labour of bringing it from (sometimes) long distances was very great. The taro, *Arum esculentum*, was also cultivated; the *hue* (gourd) was grown everywhere. The *kumara* crop was sacred; the persons working at cultivating it were sacred, and the offering of the firstfruits was one of the solemn religious ceremonies. The firstfruits were offered to *Pani*, the son of *Rongo*, the god of the *kumara*. The ceremony for making sacred the *kumara* cultivators was called *whaka-mahunga*.

87-96. They have no special ceremonies at sowing, ploughing, or harvest; nor have they any rules as to eating the new corn and fruits, nor as to the fire used to cook them. They do not sacrifice to obtain good crops, nor to save the crops from blight, hail, &c., nor have they any ceremonies for keeping vermin from the crops. There are no superstitions as to the first corn cut or the last corn cut; nor is any portion of the crop preserved with special ceremonies. The only ceremonies are those described above in connection with the *kumara* crop. The *kumara* was sacred to the gods of peace. Sometimes skulls, &c., would be placed in a row with many ceremonies, every year, to help bring a good *kumara* crop. The skull and bones of the giant *tu hou rangi* were kept for many generations to bring out and set up in the sacred places of the *kumara* fields.

War.—97. If war is decided on, the first thing done is for some leading priest to consult the omens by casting the *niu*. This is done by the priest procuring a quantity of fern stalks, representing spears—and a quantity of others to represent the warriors going on the war party (*taua*). The sticks representing the chiefs are one by one stuck in a mat and a fern stalk darted at each. If the spear falls on the left side of the man's stick he will fall, if on the right he will live. Then with sticks named for enemies he darts at others named for the men, women, and children who remain behind, lest they should be attacked in the absence of the warriors. When this ceremony was over, he lifted the *tapu* from the settlement. A fast had been held while the ceremony was proceeding. Sometimes the gods were propitiated with offerings—particularly the war-gods *Tu* and *Maru*. The priest generally, under inspiration, gave the answer, and if it was for war, he would chant the song concerning the "girdle of *Tu*," "Give my girdle of war," &c. Then when the expedition is about to start they all go to the side of a running stream, and the priest takes a branch of the *karamu* and sprinkles them one by one, saying, "Thou art baptised, oh son, to war; wield the weapon of *Tu* in the tide of war"—this is the *Tohi taua*, "War baptism." A young chief on his first war party always received a special baptism, where he and his companions had to stand naked in the water and be sprinkled and charmed.

Until he had passed through this ceremony and the bloodshedding he was a nobody. If he had shed blood in the battle, the chief called him forth and broke the weapon he had used, using the *haha* or "breath charm," "Ha! ha! ha! this is the wind feeding," &c. After this the youth was *tapu* for some long time yet; they could not touch a woman, &c., or touch their own sacred heads. All men on a war party were *tapu* to women—they could not go near their wives till the fighting was all done. They recited charms over their weapons before starting. They asked for alliances by sending baskets of cooked (human) flesh—if this present was accepted and shared, the alliance was acceptable, if not the food was sent back by one of their own men the same day. Omens were sought—a blow-fly crossing the path is ominous of defeat; startings in sleep were some of them unlucky; a kite was flown by the priest and allowed to go loose over the enemy's *pa*, if the string caught in the palisades that was an omen for victory; if the priest dreamt that his deity was overcome by the deity of the foe the party turned back directly. There was also a ceremony of making *tuahu* (sacred mounds) on the march, when the priest would consult the gods by setting up *tokomauri*, or "staffs of life," in the mounds and, turning his back, would repeat an incantation—the gods being supposed to move the sticks in answer. There is a story that a chief in the North offered up his son as a burnt-offering in time of war to see if the smoke would pass over the *pa* of the enemy, which would, if so, be captured. But this story is very doubtful, I think, as being opposed to native feeling—they might cook some one else's son, not their own. [Since writing the portion in body of MS. an instance of such sacrifice comes to my memory in ancient tradition. When Manaia was coming to New Zealand in his canoe *tokomaru*, he said to his men, "Let my brother-in-law now be slain as an offering to the gods that they may be propitious to this canoe of ours." He was killed.] Of course they had to cook for themselves on a war party because there were no women with them, but they were very particular that food was not passed by one in front of another, or put near a weapon, or touched by the right hand: it had to be carried and eaten with the left hand.

99. Those left at home did not observe any special rules unless there were bad omens, such as red sunset, owl crying in day time, &c. In such a case the women would not be allowed to cook for the men who remained, and the men would have to use the right hand for food, &c., like the war party.

100. They did not mutilate in any particular way except by cutting off the heads and drying them as trophies. Of course in the cutting up for cannibal feasts there was mutilation and the

bones were made into flutes, pins, fish-hooks, &c. The skull (as the greatest of indignities) was used sometimes as a container for food or a canoe bailer. The teeth were sometimes made into necklaces. A small piece of hair was generally torn from the head of each slain person and kept for the home-going ceremony.

101. When the fight was over they formed in ranks, three deep, each headed by a priest, who received from each man a portion of the hair from the victims—this was waved as a wave offering to the gods while the war party sang the war song. On their return, when they drew near to their own tribal land they perform the ceremony of *whaka-tahurihuri* ("turning round to look back.") They dig a small hole for each head of a great chief (of the enemy) brought back; turning round towards the land whence they have come, the priests wave and shake the heads (this is called *piori*) as a challenge, and to allow the heads to bid farewell. The song begins "Turn thou, look back, look back!" &c. When they approach the *pa*, they are met by the head priest or the priestesses in a body, and they are sung to thus, "Whence come hither the war party of *Tu*?" (*i haere mai i hea te tere o tu*?) The war party halt and commence a chant, "We come from the land, we come from the sea," &c. All the people wave their garments, and cry "Hither! Welcome!" The head priest gathers the remaining locks of hair brought by the war party and offers them to the god of war; then they dance the war dance (*tupeke*); then they proceed to the edge of the water and sit down in lines along the bank. The priest throws off his clothes, wades to the other side of the stream, and offers up a sacrifice of some human flesh, a round pebble and some fern-root, repeating the incantation, "Thou canst now eat and consume," &c. This lifts the *tapu* from the warriors. Then comes the *tangi* or lament for the warriors who have fallen—then the assembly, in which all the story of the war is told, deeds of prowess related, &c.

102. There are no special rules for individuals, only for the party of warriors.

Government.—103. They had no proper form of government: a republic with leading men, or an oligarchy with a very large aristocratic class, would partly describe the system, but only partly. It was not a republic, because the right of heredity was enforced and of primogeniture—nor was it an oligarchy, because every free man was a member of the council. There was no King; the chief was the head of his tribe and when several tribes united for war, the post of leader was given by consent to the best fighting man. The influence of the highest chiefs was largely a spiritual influence. The Ariki was the first-born of the elder branch, the head of the clan, priest as well as chief. To

him descended the high ancestral knowledge, the command of the most potent charms and spells, the right of precedence everywhere. If the first-born was a female she received the title of Ariki, but also the name *Tapairu* (now applied to the Queen). She was a very potent person in the tribe, although, of course, being under the disability of womanhood, she had not all the privileges, could not lead in war, lift the blood-*tapu*, &c. The male Ariki was always sacred; even if he did not fulfil the notions of his people by want of courage (a rare case), of hospitality, or of practical wisdom, so that another brother was made leader of the tribe in his place, still the elder was the "opener of the womb"—and a necessary person for all sacred ceremonies. Next to the Ariki came the *Tino Tangata*, or head man of each sub-tribe; then the *Rangatira*, or warriors, the "free and independent electors"; lastly, the slaves.

104. The chieftainship is hereditary for the Arikis, but elective for the war-chief. Of course there was no election by ballot, it was generally almost an understood thing as to the leader—the *prestige* would decide without saying. The chieftainship passed to sons first; failing these, then to brothers and sisters; then to half-brothers and sisters; then to uncles and aunts. A curious point was that a son was greater than his father, because he was the result of two great people coming together, while his father was only one great person the child held rank both by father and mother. From his birth the Ariki was the greatest person in his little world, till his own son was born. The power of an ordinary chief in peace time was not great; and, however influential, he could not *compel* the men to do anything—he really had little authority except over his own family and slaves. The Ariki who could *tapu* the whole place or fleet was a power, and any chief could *tapu* a thing by naming it after himself, his head, &c., but if a stronger or greater man came along he could break the *tapu* of the lesser with impunity.

Oaths and Ordeals.—105. No special forms of oaths and ordeals are in use among them.

Salutations.—107. The *hongi*, or nose-pressing, was the kiss of welcome and also of mourning and sympathy. The general salutation was a waving of garments and shouts of *nau mai! haere-mai!* &c. (welcome! hither!)

Arithmetic.—108. They count up to a thousand, but I think that over 100 the ancient Maori was not very sure.

109. They do not count by fingers and toes.

110. They sometimes use sticks for the high numbers, but not more than ordinary Europeans do to assist the memory—they have great arithmetical ability.

111. I am doubtful over the 5. I have been at work for

years in arranging the Polynesian languages in a comparative manner and I am still puzzled. People who never gave ten minutes real study to the subject say that because *rima* in Maori means "five," and that *rima* (or *lima*) in all the Polynesian dialects means "hand" and "five," therefore the Maori word *ringa*, "hand," is the same as five (*rima*). But I cannot recognise any other such change as *m* to *ng*, and I find that *ringa* means "hand" in other parts of Oceania besides New Zealand. So I do not feel sure that in New Zealand "hand" and "five" are the same words—though they are in other places. None of the other numerals seem to show connection with limbs, fingers, &c.

112. *Mano*, "thousand," is really "many," I think; after 100 they were hazy.

Writing.—113. They sometimes sent symbolical messages, as by the transmission of articles emblematic of their intentions, but they used neither quipus, notched sticks, nor any other regular method. I believe that tattooing was originally a writing, and that characters were printed on the skin. The word *tatau* means in Polynesia not only "marking the skin," but "counting, marking boundaries, making communications, printing, painting, reckoning descent, teaching, learning, giving publicity to," &c., and as I find crosses and arrow heads used in old tattooing I have written a paper (*Transactions New Zealand Institute*, Vol. XX, "Ancient Alphabets in Polynesia," p. 353) giving all I can find on the subject.

Measurement of Time.—114. They knew the year as *tau*. They counted by nights and by moons—also by stars. A division of time generally was *wa* (a word signifying "division," "to divide") now used for "an hour." The year was divided into two great seasons of summer and winter. There are varying lists to be given of the nights of the moon—the names seem to have differed in different localities. Sometimes they divide the month in halves or fortnights by "moon growing" and "moon lessening." They corrected their lunar error (in year) by observing the rising of the Pleiades and Orion. The most accurate way of counting the beginning of year was by observing the first new moon after the star *Puanga* (Rigel) was seen in the morning. The four seasons were named from agricultural operations, as Preparation, Planting, Cessation, and Harvest.

118. They took great notice of the flowering of plants and of the mating of birds, &c. Thus Spring (our August) was announced by the *karaka* (*Corynocarpus legrata*) blossoming and by the arrival of the cuckoo (*pipiwharauroa* = *Chrysococcyx lucidus*). In September the *kowhai* (*Sophora tetraptera*) flowers. In October the *tawera*, the edible flower of the *kiekie* (*Freyinetia*

Banksii) is ripe. In November the *rewarewa* (*Knightia excelsa*) blossoms. In December the *rata* (*Metrosideros robustus*) flowers. In January the *karaka* berries (see above) are ripe. In March the *kumara* (sweet potato = *Ipomœa batatas*) is ripe. In April the cuckoo leaves.

119. They have no names for the months, but only for particular periods. I fancy that the need of correcting lunar months into solar rather puzzled them.

121-123. They do not seem to have observed the solstices and equinoxes, nor have they any ceremonies at the end of the old year and the beginning of the new one. No artificial time-keepers are in use among them.

Games, Dances, &c.—124. They had the following games:—**KITE-FLYING.** The kite is called *kahu* (which by a curious coincidence also means "hawk") and *pakau* (wing). These were made of leaves of the *raupo* (*Typha angustifolia*) sewn together on a light frame. It was a game mentioned in ancient legend. **TOPS:** these were called *kaihotaka*, *kaihora*, *potaka* = whipping tops; *potaka-whero-rua*, a top with two points. **CATS CRADLE**, *whai* or *maui*, played in the most ingenious manner, far exceeding that of the European child-game; *maui*, fishing up the land; *tawhaki* (lighting), ascending to heaven, &c., being supposed to be represented: many varieties. **SKIPPING-ROPE**, *piu*, used as among Europeans, but generally by two holding the ends and many jumping. **DUCKING** (*taururumaki*) one another, one holding the other's head under water. **SWING**, *morere* or *moari*, a pole with ropes at top held by runners, the "Giant's stride," sometimes played on edge of cliffs, half the swing being over the abyss. **DART THROWING**, *neti* or *teka*, throwing with light spears to see who can throw farthest. **WRESTLING**, *takaro-ringa-ringa*, played with any hold. *Para-toetoe*, throwing light reeds at each other. *Para-mako*, throwing spears at each other—evaded by twisting the body only—a very dangerous game. *Moto* and *meke* = boxing. **DIVING**, *kokiri*; this was done by a great number diving feet foremost one after another from a high bank, or running along a pole projecting over the water. **BALL**, *poi*, a game played by a party singing a song, each having a ball fastened to a string, which is thrown about by all with the same movement and in perfect time. It is very graceful and pretty. **DISC**, *porotiti*, a boy's game of twirling a disc. *Ti*, a game played with the fingers (like *mora*, an Italian game). *Komikomi*, a similar game. *Punipuni*, a game played by slapping the hands and interlacing the fingers while singing a song. *Tutukai*, a kind of "hunt-the-slipper," a small stone being passed round the circle, each person holding his fist closed and one trying to find the stone. *Kopere* and *kotaha* = sling

STILTS=*pouturu* and *araporaka*. **DRAUGHTS**, *mu*, some think an introduced game, but I think it can be well proved to be ancient. **PROVERBS**, *whaka-tauki*, finding out puzzling ones. *Poroteteke*, a game played by boys standing on their heads and marking time with their feet. **HIDE AND SEEK**=*whaka-piri*, as with us. *Kai*=Riddles, or a puzzle to undo a knot.

There is one legend so ancient that it is known both in Samoa and in New Zealand, although so many centuries have elapsed since the separation of the tribes that Samoan is perfectly incomprehensible to a Maori.

This legend (the story of *Kae*) gives a list of the games played to amuse *Kae*, and it contains the following names:—Singing, playing on the flute, beating time with castenets, playing at *ti* (of this three kinds—one like *mora*, one claspings fingers, one in which they throw short sticks one to another) playing on a sort of Jew's-harp (*pakuru*), making puppets dance, all singing while they played with large whizzgigs (discs = *porotiti*). They made him laugh at last with a comic song and dance.

125. The chief dance was the *haka*—a sort of posture dance, performed by rows of dancers (singers) all making the same motion in the most perfect time. A good *haka* conveys a notion of rhythm worth seeing. There were war-dances called *ngaraku*, other dances called *hari*, *patere*, and *ngahau kotaratara*, a triumphant dance, and *kanikani*, a sort of see-saw dance. Sometimes the dances were conducted altogether by men, sometimes by women only—sometimes by both together. They had no "spin" dances like our waltz or polka; they were all stamping, leaping, swaying and posturing dances—sometimes very exciting and often very indecent. They had no dances that I know of in which animals were imitated—it is ages since they were acquainted (if ever) with large animals; and I have not recognised any attempt at such a thing. I do not think that any of their dances were really religious, but their chants were accompanied by waving of arms and motions difficult to distinguish from their dances.

Magic and Divination.—126. They practised magic and witchcraft very greatly. The sorcerer was everywhere, but not exactly as a professional. *Tohungas*, that is the ordinary priests, were generally called in to exercise the art for the common people, but chiefs of rank, and especially Arikis, possessed it in high power. One way to bewitch a man was to get him to break the *tapu*; another one to bury a *tapued* image or stone in his courtyard at night. A girl who did not respond to her lover's advances could be bewitched, driven mad, and killed. The usual way of obtaining power over another was to obtain (European fashion) some

of the nail-parings, hair, &c., anything of a personal nature, to act as a medium between the bewitched person and the demon. Spells would be muttered over these relics, then they were buried, and as they decayed the victim perished. Sometimes the *makutu* was used for a good purpose; thus, if any one of a fishing party had stolen my line, hook, &c., I would make a spell which would cause a *taniwha* (water-demon) to rise and carry off the thief. I find too that young people were told they would be *makutu* if they laughed at a sick dog—if they stole food from the food store, &c.

127, 128. The most powerful sorcerers were the hereditary heads of tribes (*Ariki*). These had sets of witch charms and incantations descending "in tail" from eldest son to eldest son. A *tohunga* or ordinary priest imparted his charms to his chosen disciples, to his "chelas," as the Buddhists say.

129. They could do anything—so they say. Make storms, lay storms, kill, wound, stupefy, derange, even bring to life again, but this only under certain conditions. Dawn must be near, the Pleiades high, the dying man must have a shivering fit and the robin (*toutouwai*) must be singing at the same time as *tauera* the morning star is in sight. When the great priest, *Ngatoro-i-rangi*, was coming here in the migration of the New Zealanders, he, indignant at an insult to his wife, "changed the stars of evening for the stars of morning"—but he was a very high and mighty priest.

130. The sorcerers never dress as women, but the dress of men and women was much alike—the women had mats of a somewhat finer quality sometimes than ordinary men, but the valuable heirlooms (cloaks, &c.) were only worn by the high chiefs—they were *tapu* of course to others.

131. The *tohungas*, having more knowledge than the crowd, were generally looked to as interpreters of omens, but all the people were constantly in superstitious fear of ominous occurrences. Convulsive startings in sleep, the twitching of the arms and legs outwards or inwards were always taken as omens. Tripping the foot in starting on a journey was bad and would cause them to go back. If in travelling the feet between the toes get filled with fern, that is evil. If one's chin itches it is a sign you will soon eat something oily. An ember popping out of fire or the singing of gas from burning wood, were ominous. Aerolites, meteors, &c., were unlucky; so was the moon near a large star. Some of them disliked the morepork, or little owl (*ruru* = *Athene N.Z.*); all of them hated the lizard. Dreams were recited and listened to with great attention.

131. They drew omens from the flight of birds, not after the fashion of the *haruspex*. If a party on the march heard the

little bird called *tiraueke* on their left hand, it was war, if on the right, feasting.

132. They used the *niu* for casting lots, as a divination in other matters beside war.

Religious and Political Associations.—133. I have mentioned *wharekura*, the college which is traditionally said to have existed. Herein Religion, Agriculture, Astronomy, &c., were taught. I do not know of any other association. Politically, they used to assemble in councils called *runanga*, but these were tribal meetings (folk-motes). I am trying hard to find if my notion of a religious Freemasonry (extending through the Pacific) has solid ground.

Men as women, &c. Sleep forbidden.—134–136. The sexes do not exchange clothes, nor is sleep ever forbidden.

Ceremonial uncleanness.—137. The walls of a house are sacred. A chief would not lean against a wall, or indeed enter a house, if he could help it, except his own. It is said that the walls are made unclean by the Maori women hiding in the clefts the cloth polluted by the menses—this is called *kahukahu*, and engenders the *kahukahu* evil spirits mentioned above (see 26). I cannot describe all the possibilities of uncleanness; anything, everything could become *tapu* under certain circumstances and would have to be purified by a *pure* ceremony of some kind. The earth was purified after the Deluge by a sacrifice of seaweed—in ordinary cases by a *pure* of cooking food for the gods, &c., with the priestly incantations.

Doctrine of Souls.—138. They believe that human beings have souls. The word *ata*, “reflected light”—is sometimes used for “soul,” but *wairua*, “spirit,” is the common word. The etymology is obscure. It seems to have signified a shadowy form, but, exactly as with Europeans, there is discrepancy in the ideas. We Englishmen hear ghosts described sometimes as thin misty apparitions, sometimes as gaunt materialistic forms, sometimes as so like the living person that they are mistaken for him, and it is only by the melting away into thin air that the ghostship is recognised. The Maoris too think that dead men have appeared as living ones, but the general notion is that of indistinctness.

139. The soul leaves the body in dreams and trance. In illness the soul journeys away and is sometimes on the brink of crossing to Hades, but returns—only a few return. There is no idea of a happy heaven, so they leave life unwillingly and the soul looks back sorrowfully as it goes. Messages were sent by the dying to other friends gone before. The souls passed from south to north till they came to the extreme north-west point of New Zealand, to *Te Reinga*, the Spirit's Leap. Here the

soul leaps into the sea or slides down the trunk of a tree, the *pohutukawa* (*Metrasideros tomentosa*). Hence the saying for one dead, "He has slid down the pohutukawa"—and passes to *Po*, Hades. There are several divisions in Hades. (1). *Aotea*, then *te-uranga-o-te-ra*, then *hikutoia*, then *pouturi*, finally *toke*. In each of these the soul seems to lose some of its vitality, till in the last, *toke* (worm), it turns into a worm and then dies altogether. This is one account. Another says that in entering the Hades, or at the *Reinga*, one must cross a river—the Maori Styx. His name is shouted out and food set before him—if he partakes of this food he can never get back. A man named Te-atarahi once came back after being dead five days, but he met some of his relations, who warned him not to touch the food. His skin was all wrinkled and loose, but after being purified by incantations he got well. Sometimes the Charon of the death-river drives the spirit back to his friends and he recovers. Two women once had a peep into spirit world, and saw three grey-headed old spirits sitting round a fire; they (the spirits) ran away, and one of the women, desirous of getting some spiritual fire, seized one of the firebrands and was running away, when, just as she was getting clear, a spirit caught her by the heel. She did not like to relinquish her prize, so whirled it into the air and it stuck up into the sky, being what we call the moon. Store houses are generally built north and south so that spirits might not pass over them going to *Reinga*. Spirits were generally clothed in leaves of the *wharangi* (*Melicope ternata*) and *horopito* (*Drimys axillaris*). When on its way the spirit goes to a hill called *wai hokimai*; it strips off its clothes (of leaves) and wails its last lament. Spirits generally made up bundles of grass and leaves as they went—these are called *tohu*, as "remembrance"; the name of the bundle itself was *whakau*—a green bundle denoted a recent death. It is probable that many of the stories told about *Po* and *Reinga* are the dreams of people in trance through illness. This is the way ordinary souls passed—great heroes went up to heaven and became constellations, or deities—as usual everywhere.

141. They believed that dreams were omens, but I do not think they believed them to be actual occurrences, but the soul had wandered and had seen the things in *Te Reinga*. To dream of wounds, death, bad food, war, drowning, &c., were all evil omens (*aitua*)—sings in the ear, gurglings in the throat, feeling the chill *tokihi-kiwi*, the "cold wind of battle"; all these were ominous sleep-warnings.

142. I do not think the friends of a sick man ever tried to restore the soul of a sick man to his body; it was, at all events, uncommon if it happened. They were rather heartless to sick

people, and used to leave them often to die alone—sometimes through sheer hunger.

143. A man's enemies never, as far as I know, attempt to catch and detain the wandering soul, in order that the man, deprived of his soul, may die.

144. They do not think that a man's soul can be extracted or stolen from him, nor that he can lose it by accident.

145. Souls are not driven away by noises, nor can they be bottled up.

148. There is only one instance of transmigration; that is, where the soul (through want of proper death ceremonies) has become malignant, and entered a lizard. This lizard is supposed to gnaw the entrails of a sufferer. I suppose that the lizard is "pain," but lizards are always looked on with dread. In spite of this they were sometimes killed and eaten—some sorts—by freethinkers, I expect.

149. Animals, trees, and plants are not supposed to have souls; nor are they ever treated like human beings, spoken to as intelligent creatures, dressed in human dress, or married to men or women.

150. The heroes and demi-gods took shape as birds, &c., but they did not "talk bird"—they talked Maori. In the fables the lizard and the hawk talk to one another, but I suppose that this is and always was quite transparent, and was never supposed to impress the idea of a bird or mammal or reptile speech.

151. It is only the soul of an offering (of food, &c.) which is accepted by the gods. When the fairies accepted the jewels of *te kanawa*, they only took the souls ("similitudes") of the ornaments; the material jewels were given back to him. Weapons have not souls exactly, but the weapons which have been used in war have the wonderful *mana*—that is, *power, prestige, holiness, intellect, influence*—all these (yet not quite any) describe the word. Some weapons have come down from the gods, and have their genealogies of owners up to *kore* (chaos). The greater feats the weapon had performed, the greater *mana*. I translate *mana* as akin to *skt*, *manas*, "mind"—and if it does not suit you to say a weapon has a "soul," it has certainly "mind." Sometimes they prophecy, sometimes they shift about; they would kill with their subtle power the inferior person who dared to touch them. It would not exist after the thing was destroyed—it is only what Buddhists call *kama rupa*, not *Buddhi*.

152. The souls of the departed are not exactly worshipped. Maoris hardly have the idea of worship, they are not humble-minded enough to worship. They offered death sacrifices, sacred food for the dead, &c., rather with the idea of "throwing

a sop to Cerberus" in pacifying the evil deities, and also in paying honour to a chief, than from the faintest idea of adoration, &c.

Demons and Spirits.—153. They believe in demons and spirits, but there is not a general division into classes such as nymphs, Dryads, &c. A certain lake might have a spirit, but the next lake none; there was no organization of lake spirits. The fairies were called *patu paiarehe*. They were white-skinned, golden-haired, pretty creatures; but they were dreaded, as sometimes they would carry mortals off. *Turehu* was another name for similar beings. *Mohoo* were wild men with great tusks, who decoyed any unwary traveller into the forests and devoured them. *Taniwha* were water monsters generally; they mostly inhabited lakes and streams, but sometimes the sea. Sometimes the beast was a land animal, a lizard, &c., but the true *taniwha* is a water kelpie. In the *Taniwha* stories I send (from "The Aryan Maori") *pekehana* is the true *taniwha*, although a sodden beast. Trees, storms, food, &c., were under the control of deities—not regarded as mere spirits. Thus the Lord of Forests was *tane-mahuta*, and Tane was a very great god indeed in Polynesia. *Haere* was a rainbow spirit. *Ponaturi* were elves, little tiny people, mostly dwellers in water and coming ashore to sleep. Then we have *te tini ote hakuturi*, "the multitude of the wood-elves," the little people who put the chips all back into the tree *Rata* had felled and stood it upright again, because he had not paid offering to *Tane*. There is a spirit which is only a voice heard in the surf. There is the *taepo*, a night demon, not very dangerous, but frightening people much. We have real ogres—man-eating, huge, with magical swiftness.

154. They do not pray or sacrifice to these spirits, except by incantation.

155. And by this means demons or spirits may sometimes be driven away from a house, camp, or village, but there is no periodical expulsion.

Scapegoats.—156. There is nothing resembling the scapegoat.

Guardian Spirits.—158. There are no guardian spirits. Still, each man had his own particular charm (against witchcraft); it is called his "*Kaiwhatu*," and is of course only valuable as giving him the protection of the particular spirit he considered powerful.

159. There is no idea that their life or fortune is bound up with any special object, but the body of another can sicken and be destroyed, thus driving out the soul, by the malpractice of sorcerers procuring a part of some personal belonging (hairs, nails, &c.).

Resurrection.—163. If they do believe in any form of resurrec-

tion it must be a very esoteric doctrine. The deified souls of great heroes are immortal, and they may take human likeness and appear to us—but they are gods. A great chief of god-lineage would share this heaven, but it was always in Polynesia what has been called with admirable sarcasm, “a paradise of the peerage.”

The Heavenly Bodies, &c.—164. Nothing in the form of worship or even homage is paid to the heavenly bodies. The ceremonies for the year-changes seem more propitiations of deities controlling food-planting, &c., than stellar adoration.

165. There are numerous myths about the sky, the earth and the heavenly bodies, but I cannot write them, they are too long. They have been printed already by Grey, White and others.

166. The sun descends at night into *Po*, the underworld—sometimes into *te rua*, “the cave,” but that is only another name for the place of night and death.

167. Thunder (*Whaitiri*), lightning (an emanation from the god *Tawhaki*, *Whaitiri*’s grandson), the rainbow (as *kahukura*), earthquake (*ru*), all are deities. Rain is the splashing over of the lake in the heaven called *ngaroto*. Wind is a subject I do not like to speak of with certainty. There is a confusion between *hau*, “wind,” and the Polynesian *hau*, “king”—numberless invocations and ceremonies such as *whangai-hau*, &c., may not be for wind as an element. I must leave it.

168 and 169. There are many myths about animals, plants, &c., but I am too much of a worker to be able to write out many stories.

170. Sacrifices are sometimes offered, rarely human beings or animals; generally worthless things, or food, hair, &c., as belonging to persons, seaweed, fish, &c.

171. I know of one instance of a child being offered up by its father but generally the victims.

172. They have no superstitions about shadows or reflections in water.

175. Sneezing is met with the usual “God bless you” salutation of “*tihe, mairi ora*,” “Sneeze, living soul!”

176. Maoris hate to be stepped over—it is very rude even now to step over one lying down. Things also were tapued by being stepped across.

177. They kept silence at certain times, being a well-bred and ceremonious people, but there was no long periods of silence such as the Kings of Hawaii laid on their people by proclaiming *Tapu*.

178. The unpremeditated stretching out or stepping out with right hand or foot was accepted as an omen.

179. Footprints, &c., had no particular signification.

180. Seventy was a sacred number for war parties, &c. Most mythical great armies were multiples of seven.

181. There are very many superstitions about animals and plants.

183. They were more cleanly than most savages about excrement. Every house had a (concealed, if possible) privy near, and in large *pa's* a pole was run out over the cliff, to sit on, sailor fashion. I only know one superstitious use of excrement, that wherein the hooks were placed round some before the fishing-party incantations began.

184. Spittle was *tapu*, like hair, &c.

185. They have a great objection to speak their names. Now it is rude to ask a man the name of his wife, &c., still more his own—he is supposed by courtesy to be one so great that he is world-renowned. They had the usual Polynesian dislike to using words containing names of chiefs, &c., and changed the words for others.

186. The names of persons are very commonly changed, especially in remembrance of the death of a child, &c., sometimes in memory of an insult to be avenged.

187. The names of common objects are changed so as not to mention chiefs' names.

MAY 14th, 1889.

Professor FLOWER, C.B., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of J. ETLINGER, Esq., and of HENRY TUFNELL, Esq., was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the GENERAL-VERWALTUNG DER KÖNIGLICHEN MUSEUM IN BERLIN.—Veröffentlichungen aus dem königlichen Museum für Völkerkunde. I. Band. I. Heft.

From the AUTHOR.—The Eye of the Adult Imbecile. By Charles A. Oliver, M.D.

- From the AUTHOR.—Description of a case of Coloboma of the Iris, Lens, and Choroid; with a study of the visual fields. By Charles A. Oliver, M.D.
- Double Chorio-Retinitis, with partial degeneration of the Optic Nerve, associated with curious lymph extravasation into the Retina and Vitreous. By Charles A. Oliver, M.D.
- Further Contribution to the study of Consumption among the Indians. By Washington Matthews, M.D., LL.D., U.S.A.
- An Eskimo Strike-a-light from Cape Bathurst, British America. By Walter Hough, Department of Ethnology, U.S. National Museum.
- Ethnographie Précolombienne du Venezuela. Vallées d' Aragua et de Caracas. Par le Dr. G. Marcano.
- From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE UND URGESCHICHTE.—Correspondenz-Blatt. 1889. Nr. 3.
- From the BERLIN GESELLSCHAFT FÜR ETHNOLOGIE, ANTHROPOLOGIE UND URGESCHICHTE.—Zeitschrift für Ethnologie. 1888, Heft 6. 1889, Heft 1.
- From the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Scottish Geographical Magazine. 1889. No. 5.
- From the ROYAL ARCHÆOLOGICAL INSTITUTE.—The Archæological Journal. No. 181.
- From the SOCIÉTÉ ARCHÉOLOGIQUE, AGRAM.—Viestnik hrvatskoga Arkeologičkoga Društva. Godina xi. Broj 2.
- From the SOCIETÀ ITALIANA DI ANTHROPOLOGIA, ETNOLOGIA E PSICOLOGIA COMPARATA.—Archivio per l'Antropologia e la Etnologia. Vol. xviii. Fas. 3.
- From the CLUB.—Proceedings of the Berwickshire Naturalists' Club. 1887.
- From the LIBRARY.—Report on the Mitchell Library, Glasgow. 1888.
- From the ASSOCIATION.—Cincinnati Museum Association; Eighth Annual Report for the year ending December 31, 1888.
- From the KAIS.-KÖN. AKADEMIE DER WISSENSCHAFTEN, WIEN.—Sitzungsberichte: philos.-histor. Classe. Band cxvi.; math.-naturw. Classe, I. Abthlg. 1888, No. 1-5; II. Abthlg. A. 1888, No. 1-7; II. Abthlg. B. 1888, No. 1-7; III. Abthlg. 1888, No. 1-6; Almanach, 1888.
- From the ACADEMY.—Bulletin International de l'Académie des Sciences de Cracovie. Comptes Rendus des Séances de l'année 1889.
- From the SOCIETY.—Proceedings of the Royal Society. No. 278.
- Proceedings of the Royal Geographical Society. 1889, May.
- Proceedings of the Society of Biblical Archæology. Vol. xi, Part 6.
- Journal of the Society of Arts. Nos. 1899-1903.
- Transactions of the Royal Society of Victoria. Vol. i. Part 1.
- Bulletin de la Société des Sciences Naturelles de Neuchâtel Tome xvi.

From the SOCIETY.—Boletim da Sociedade de Geographia de Lisboa.
7a Serie, Nos. 11, 12.

From the EDITOR.—Nature. Nos. 1015–1019.

— Science. Nos. 422–325.

— Revue Scientifique. 1889. Nos. 15–19.

Mr. G. M. ATKINSON exhibited a remarkable form of Celt obtained from a native on the Essequibo River, Dutch Guiana, by W. S. Turner, Esq., of Georgetown, Demerara, who presented it to A. G. Geoghegan, Esq., in July, 1888.

Mr. ARTHUR THOMSON exhibited an articulated skeleton and several skulls of Veddahs, and read the following Paper:—

On the OSTEOLOGY of the VEDDAHs of CEYLON.

By ARTHUR THOMSON, M.A., M.B.

ALL the information regarding the Osteology of the Veddahs or Weddo of Ceylon has hitherto been confined to a description of the crania of that people.

The skeleton of an adult male Veddah, aged 26, has been recently added to the ethnological collection at Oxford which already contains several specimens of Veddah skulls. It had been the intention of the late Professor Rolleston to have described the latter, and in his papers, now in the possession of the University, there are many notes relating to them; unfortunately I have not been able to make much use of these, as they are very fragmentary and scattered, but I have found them of much service in identifying the locality and sex of the several specimens, as proved by the letters of the different donors.

I propose making the description of the above specimens the subject of the present inquiry.

The literature of the subject is limited, with one or two exceptions, to a mere description of the appearances of this race, and very few measurements of their proportions are recorded. Percival,¹ Cordiner,² Knox,³ Davy,⁴ Pridham,⁵ and Stirr⁶, in their respective works on Ceylon all refer to the Veddahs.

1. "Description of the Island of Ceylon." London, 1805.

2. "Description of Ceylon." London, 1807.

3. "Historical Account of the Island of Ceylon." London, 1817.

4. "Ceylon and its Inhabitants." London, 1821; and *Researches Anatomical and Physiological.* John Davy, 1839, vol. i, p. 177.

5. "Ceylon." C. Pridham. London, 1849.

6. "Ceylon and the Singalese." London, 1850.

More recently Tennent,¹ Baily,² Rolleston,³ and Hartshorne,⁴ have described at some length the physical appearances and habits of these people. By far the most elaborate monograph on the subject is that by Professor Virchow,⁵ who has collected most of the information on the subject up to the date of publication. Further reference may be made to the standard works of Pritchard,⁶ Tylor,⁷ and Lubbock,⁸ whilst for the description of measurement of numerous skulls the Catalogue of the Human Crania, in the collection of the Royal College of Surgeons of England, by Professor Flower, and the "Thesaurus Craniorum" of Dr. Barnard Davis may be consulted.

The skeleton to be presently described was purchased from the Anthropological Society of Bombay. It is stated to be that of a male Rock Veddah, and was obtained by Mr. C. V. Stevens, who spent some months in 1886 among these interesting people on the eastern side of the Island of Ceylon. Mr. Stevens brought back three skeletons of pure Veddahs, which were purchased by the Anthropological Society of Bombay, of which the present specimen is one.

The age of the skeleton is said to be 26, and in many respects this is borne out by the condition of the skull. The ossification of the long bones, however, seems to have been delayed so that we have epiphyses separable at an age at which we would naturally have expected to find them fused.

Skeleton.

For the sake of uniformity the measurements adopted are those employed by Sir William Turner in his monograph on the Human Skeletons, published in the Challenger Reports,⁹ and reference is made to that work for information on the methods adopted.

As considerable importance now attaches to the pelvis, it has been taken first in the series of measurements.

After articulation, the greatest diameter between the iliac crests was found to be 230 mm. Its height, as measured from the highest point of iliac crest to the most dependent part of

¹ "Ceylon." London, 1859.

² "Transactions of Ethnological Society." New Series. Vol. ii, 1863, p. 279.

³ "Transactions of British Association," 1872, p. 194. Scientific Papers and Addresses. Rolleston. Vol. i, p. 161.

⁴ "Fortnightly Review." London, 1876. New Series. Vol. xix, p. 406.

⁵ "Ueber die Weddas von Ceylon und ihre Beziehungen zu den Nachbarstämmen." Academia Berolinensis Classic Physica. 1881.

⁶ "Natural History of Man."

⁷ "Primitive Culture." London, 1871, vol. i, p. 45.

⁸ "Prehistoric Times."

⁹ "Challenger Reports," vol. xvi.

the ischial tuberosity, equals 188 mm. 178 mm. is the distance between the anterior superior iliac spines, that between the posterior superior iliac spines is 62 mm. The greatest width between the outer borders of the ischial tuberosities is 93 mm., and the tips of the ischial spines are distant 56 mm. from each other. The vertical and transverse diameters of the acetabulum are equal, and measure 49 mm. respectively. The obturator foramen is 48 mm. in its vertical diameter and 30 mm. in its transverse, yielding an index of 62.5.

The sub-public angle is extremely narrow; it measures 55°.

The angles of a Hindoo and a Sikh, measured by Turner, are 57° and 62° degrees respectively.

With regard to the dimensions of the cavity of the true pelvis, we find the greatest transverse diameter of the inlet equals 99 mm. This is exceeded by the conjugate or antero-posterior diameter, which measures 102 mm. From these measurements

the pelvic index is computed as follows:—
$$\frac{\text{Conjugate} \times 100}{\text{Transverse}} = 103.$$

The oblique diameters, taken from the sacro-iliac joints to the ilio-pectineal line opposite the ilio-pectineal eminences, do not differ, 99 mm. being the measurement on either side.

The distance from the middle of the body of the fifth sacral vertebra to the lower border of the pubic symphysis, called the inferior sagittal diameter, measures 109 mm. The coccygeo-pubic diameter could not be measured, as the coccyx is wanting. The width between the inner borders of the ischial tuberosities, taken from points just below the lesser sciatic notches, equals 77 mm. 32 mm. is the measurement from the upper to the lower border of the pubic symphysis. The depth of the true pelvis is gauged by measuring the distance from the brim near the pectineal eminence to the most dependent part of the ischial tuberosity; this equals 91 mm.

The following are the measurements of the individual bones. The height length of the ilium equals 115 mm., its breadth, 129 mm., yielding an iliac index of 112.

The breadth of the innominate bone is taken from the posterior superior iliac spine to the upper end of the pubic symphysis; this measures 158 mm. The length of the pubis is 57 mm. The pubo-innominate index obtained thus:—

$$\frac{\text{Pubic length} \times 100}{\text{Innominate breadth}} = 36.$$

Length of ischium equals 81 mm. The innominate index is obtained by use of the following formula—

$$\frac{\text{Breadth of innominate} \times 100}{\text{Height of pelvis}} = 82.7.$$

The height of pelvis is equal to the ischio-iliac diameter when taken in a straight line. To obtain the ischioin-nominate index

the formula is—
$$\frac{\text{Ischial length} \times 100}{\text{Pelvic height}} = 42.4.$$

There is unfortunately much diversity in the methods of measuring the pelvis. The above have been adopted both for the sake of uniformity, and also because Sir William Turner's paper embodies the most recent results.

In regard to the breadth-height index it may be well to remind the reader that when the index is high it indicates that the pelvis is relatively high compared to its breadth, and conversely when the index is low it expresses a pelvis broad in relation to its height. Verneau¹ quoted from Turner, gives the mean measurements of 63 European pelves as 220 mm. high and 279 mm. wide, yielding an index about 79. From this it will be seen that the present specimen, with an index of 81, is relatively high compared to its width. In regard to the pelvic index, a high index shows that the pelvis possesses a conjugate diameter greater than the transverse, a low index that the transverse diameter exceeds the conjugate. To the former group Turner has applied the term *dolichopellic*, to the latter, *platypellic*. Europeans generally are *platypellic*, and in the *dolichopellic* group, which includes those with an index above 95, are to be found Australians, Bushmen, Hottentots, Kaffirs, Andamans, and Malays. The index in the present instance is 103, and naturally falls within this group.

Sacrum.

The sacrum, anteriorly, is flat above and tilted forward below, presenting almost a feminine appearance. The deepest part of its curve, on a level with the centre of the third segment, lies 10 mm. behind a line drawn from the centre of the promontory to the centre of the lower border of the fifth vertebra. The bodies and lateral masses of the first three segments are not completely fused together.

It measures in length 101 mm., width 103 mm., yielding an index of 98. The term *dolichohieric* is applied to that group with sacral indices below 100, and includes Australians, Kaffirs, Andamans, Malays, and Chinese.

¹ "Le Bassin dans les Sexes et dans les Races." Paris, 1875.

Spinal Column.

The vertebrae, like other parts of the skeleton, are not completely ossified; the epiphysal plates on the bodies are wanting in most instances, and, where present, are only fragmentary. The epiphyses at the extremities of the sixth and seventh cervical spines are wanting. In most instances the neuro-central suture is visible on the upper and under aspects of the bodies of the vertebrae.

The column, including the cervical, dorsal, and lumbar vertebrae, closely strung together and then laid on a horizontal plane, measured 42.5 cm.

The vertebrae are small.

The transverse diameter of the under surface of the body of the fifth lumbar = 42 mm.

The transverse diameter of the fourth dorsal vertebra (the narrowest) = 22 mm.

The transverse diameter between the tips of the transverse processes of the atlas = 68 mm.

Cervical Region.

In this region the spines of the second, third, fourth, and fifth are bifid. The sixth is tuberculated, but the small epiphyses are wanting; it approached nearly in length to the spine of the seventh, the epiphysis of which is also absent.

The vertebra-arterial foramen is absent in the transverse processes of the seventh cervical vertebra. In this situation a pair of cervical ribs is developed.

The foramen is very small in the right transverse process of the sixth. On the left side it is normal, as throughout the remainder of the series. The cervical ribs present show a small head, which articulates with a little tubercle on the side and upper part of the body of the seventh cervical vertebra. A slender neck stretches outward to join a well-developed tubercle, which articulates by means of a facet 7 mm. in diameter, with a corresponding surface on the transverse process. The shaft of the rib is represented by a stunted process about 9 mm. in length. The entire length of these supernumerary ribs measures about 25 mm.

Dorsal Region.

The ninth dorsal vertebra has two demi-facets. The tenth, one-half facet only. There is no indication of facets on the transverse processes of this vertebra, nor are there articular surfaces on the tubercles of the tenth ribs.

On the left side of the eighth and ninth dorsal vertebræ there are little articular tubercles situated on the pedicles in line with the articular processes; these articulate with corresponding surfaces on the eighth and ninth ribs of that side. There is no articular facet visible on the transverse process of the ninth vertebra. Otherwise the arrangement is normal.

The mammillary processes are well-developed on the twelfth, and evident enough on the eleventh. That on the left side of the tenth curves over the inferior articular process of the ninth, so that the two vertebræ are interlocked.

In other respects this series of vertebræ is normal. It may be noted, however, that the small epiphyses on the spines are absent.

Lumbar Vertebræ.

The mammillary and accessory tubercles do not present any unusual development. Employing the measurements described by Cunningham in his memoir on the "Lumbar Curve in Man," the indices of the vertebral bodies are as follows:—

Lumbar Vertebra.	Anterior Depth.	Posterior Depth.	Index.
	mm.	mm.	
I.	19	21	110.5
II.	20	23	115
III.	22	23	104.5
IV.	21	20	95.2
V.	20	20	100

A reference to the above will show at once that the centra of the upper three vertebræ are thicker behind than in front. The lumbo-vertebral index is obtained thus—

$$\frac{\text{Sum of posterior measurements} \times 100}{\text{Sum of anterior measurements}} = 104.9.$$

A result which displays the tendency of the vertebræ in this region to arrange themselves in a curve, the concavity of which is directed forward. To such a condition Turner* has applied the term *kyphorachic*, as opposed to the conditions in which the column approaches the straight (*orthorachic*), or that in which the convexity is directed forward (*kurtorachic*).

Another point of interest to which Cunningham has drawn

* "Royal Irish Academy." Cunningham Memoirs, No. II.

* "Challenger Reports," vol. xvi. "Report on the Bones of the Human Skeleton," p. 73.

attention is the fact that in the lower races of man, the fifth lumbar vertebra has not that well-marked wedge-shaped appearance so characteristic of the higher races. He attributes this to the variation in the backward sweep of the sacrum and a consequent difference in the pelvic inclination.

In the skeleton at present under examination, a reference to the measurements of the fifth lumbar vertebra tends to prove the correctness of Cunningham's observations.

Sternum.

The presternum and the second and third segments of the mesosternum are alone present. The presternum measures 49 mm. vertically, 54 mm. transversely. The second and third segments of the mesosternum are fused together, their combined length equals 59 mm; greatest width, 25 mm. The lower border of the third segment is notched as if there had existed a foramen between the third and fourth segments. Broca¹ has drawn attention to the fact that in the lower races of man there is a tendency for the segments of the sternum to remain separate in the adult condition. In the anthropoid apes, with the exception of the gibbon, we find this normally the case.

Ribs.

All the ribs are present; the longest are the sixth, which, measured from head to tip along their outer curve, = 275 mm.; from the anterior margin of the articular facet on the head to the inner border of the sternal end in a straight line measures 159 mm. The cervical ribs have been already described.

Clavicles.

The clavicles, which are slender bones, differed in length; the left, the longer, measures 132 mm., the right 122 mm. The muscular impressions on the left are slightly more pronounced. The right has strong impressions for the costo-clavicular and coraco-clavicular ligaments; these are scarcely, if at all, evident on the left bone.

The curves of the bones are slight. A comparison of these curves, obtained by making tracings on tracing paper, and then superposing, one reversed over the other, showed no perceptible difference. The difference in the length of the clavicles may be perhaps explained by the employment of the left arm in the use of the bow, of which Davy² remarks: "The influence of

¹ "Bull de la Soc. d'Anthr." Paris. February, 1878.

² "Researches Anatomical and Physiological." John Davy, 1839, vol. i, p. 177.

habitual exercise in strengthening any particular set of muscles is remarkably illustrated in the Vaida. I saw one, a young man of a diminutive and spare form, with slender arms and shoulders, use with the greatest ease a bow he had been accustomed to, which one of the strongest of our soldiers could hardly bend."

Similarly Hartshorne¹ says: "But notwithstanding their small size and their slight physique, the strength which they possess in the arms, and especially in the left, is remarkable. It is probable that this is due to their constant use of the bow, upon which they chiefly depend for their supply of food. It is about 6 feet long, and has generally a pull of from 45 or 48 to about 56 pounds. It therefore requires no ordinary strength to draw the arrow, which is 3 feet 6 inches in length, up to the end.

One of them (Latty) was able to hold his bow, drawn to its full length, for upwards of two minutes, without the slightest tremor of the left arm."

Scapulae.

The scapulae are small and slender. The acromial epiphyses are still separate. The epiphyses along the vertebral border are absent except at the lower part on the right side.

The superior border is thin and sharp, falciform in outline, with no trace of a suprascapular notch or foramen. The vertical length is 135 mm., the width 96 mm. The scapular index, 71.1, is high; this indicates a proportionate increase in the breadth of the bone, and differs widely from that of European specimens, the average index of which, according to Broca, is 65.9, according to Garson, 65.2.

In this respect it more nearly approaches the averages given by Turner—100 Negroes, 69.7; 27 Andamans, 70.2; 26 Melaneseans, 69.8; 16 Hindoo and Sikhs, 68.5; 10 Malay, 68.9. The infraspinous index, 98, is also high, and in this character it is most closely associated with the races above mentioned. In another respect the bones closely resemble those of the Andaman. Professor Flower² has pointed out that in the latter race a distinct suprascapular notch is very rare, and he only records three instances of its presence. As before noted the superior border of the scapula is thin and falciform in outline, with no trace of a notch or foramen. In other two specimens belonging to the collection of the Royal College of Surgeons, which I had an opportunity of examining, I found the scapulae of No. 680A, one notched, the other with an even superior border; in 680B

¹ "Fortnightly Review," vol. xix. New Series. 1876, p. 407.

² "On the Osteology and Affinities of the Natives of the Andaman Islands."

"Journ. Anthr. Inst." November, 1879.

both scapulæ were notched. The scapular indices have been given as above, notwithstanding the fact that the epiphyses along the vertebral border are wanting. It appears that these epiphyses have little influence in moulding the general form of the bone. In the Ungulata they remain permanently cartilaginous, and in man, when present, they do not so materially increase the width of the bone as to render measurements without them entirely devoid of value; moreover, as will be seen above, the scapulæ are relatively broad even disregarding these epiphyses.

Shaft of the Upper Extremity.

Humeri.—323 mm. in length; are long and slender. The superior epiphyses are not yet fully united to the shaft. The extremities are small compared to the length of the shaft; the circumference of the articular part of head is 120 mm.; the greatest intercondyloid width 57 mm. The outer bicipital ridge and the deltoid impression are well-marked.

Radii.—These bones are slender and little curved. The inferior epiphyses are still separate. Maximum length (including styloid) = 253 mm. on the right side, 251 mm. on the left. Muscular impressions feebly marked, extremities small; greatest transverse diameter of inferior extremity is 26 mm.

Radio-Humeral Index, 78.3.

Ulnæ.—Slender and more curved than usual, rendering the posterior border very prominent. Maximum length—right 271 mm., left 268 mm. The inferior epiphyses are still separate. The extremities are small.

Manus.—The bones of both hands are complete. The carpi are small. The length of the hand measured—after articulation—from the centre of the radial surface of the semilunar to the tip of the ungual phalanx of the middle finger, the right 175 mm., the left 176 mm.

Shaft of the Inferior Extremity.

Femora.—These bones differ slightly in length. The maximum oblique length of right is 466 mm., left 470 mm. The length from the condyles to the tip of the trochanter in the oblique position is 444 mm. on the right, 451 mm. on the left. As is the case with the other long bones, the characteristic appearance is due to the long and slender shafts and small extremities. The greatest intercondyloid width is 67 mm. The circumference of the articular head measures 130 mm. The shaft, which is compressed and flattened in its upper fourth, presents a double curve—the upper corresponds to the upper

fourth of the shaft and the trochanters, and is concave anteriorly. The lower curve is general throughout the remainder of the bone, and is convex anteriorly. The shaft is also twisted in the upper part, so that the anterior surface of the bone is directed outwards and forwards, thus causing the general mass of the trochanter to be placed further back than usual, with a corresponding rotation of the head and neck forward. The inner border of the shaft is prominent above, and between it and the trochanter minor there is a well-marked groove. The *linæ asperæ* are well pronounced, and in the middle thirds of the bones form outstanding ridges. The impressions for the *Glutei maximi* are strongly marked. The spiral line is hardly distinguishable. The inferior epiphyses are separate.

Tibiae.—These bones are of unequal length; the right measures 395, the left 399 mm.; they are remarkable for their proportionately great length and the small size of the extremities. The greatest width at the condyles is 63 mm. The surface for articulation with the head of the fibula is indistinct. The superior epiphyses are not completely fused with the shaft. The shaft is much curved anteriorly; the most prominent point of the curve, opposite the junction of the middle with the upper third of the shaft, is situate 16 mm. in front of a straight line drawn from the anterior margin of the upper extremity to the anterior margin of the lower extremity. The shin is correspondingly prominent. The transverse diameter of the shaft, taken at the level of the nutrient foramen, measures 24 mm. on the right, 22 mm. on the left. The antero-posterior diameter, taken at the same level, is 31 mm. on the right, 30 mm. on the left. The indices of platycnemia derived from these are 77.4 for the right and 73.3 for the left tibia respectively. The inferior extremity is but little expanded; its greatest width is 44 mm.

On the anterior borders of the lower extremities of both tibiae there are semilunar facets measuring 13 mm. long by 7 mm. wide. These surfaces, which are placed rather towards the fibular side, are for articulation, with corresponding surfaces on the necks of the astragali, and come in contact with these latter in extreme dorsi-flexion of the foot. The tibio-femoral index is 84.8; the intermembral index, 66.2; and the femoro-humeral index is 68.7.

Fibulae.—These are stout bones contrasted with the slender femora and tibia. The extremities are small. Maximum length—right 381 mm., left 384 mm.

Patellæ.—Small; 34 mm. wide, 38 mm. long.

Pedes.—The skeletons of both feet are complete. After articulation the foot measures from the most prominent point of the calcis to the tip of the ungual phalanx of the second toe, on the

right side, 212 mm., on the left 210 mm. The length of the second toe exceeds that of the great toe by 2 mm.

The tarsus presents no peculiarity other than that to which I have referred, viz., the presence of a facet on the neck of the astragalus which articulates, with a corresponding facet on the lower end of the tibia. A similar condition exists on both sides.¹

There is a well-marked tubercle posteriorly, which is probably developed from a separate centre, as sometimes happens; and the articular surface on the under surface for contact with the sustentaculum is more extensive; indeed, the surfaces are such as to lead us to suppose that a somewhat freer range of movement existed between the astragalus and os calcis, a fact no doubt associated with the habits of this individual.

The maximum length of the third metatarsal equals that of the second, viz., 70 mm.

I have had the opportunity, thanks to the kindness and courtesy of Professor Charles Stewart, of examining two imperfect skeletons of Veddahs in the possession of the Royal College of Surgeons.

Specimen No. 680A was that of an adult male from Appua. The long bones are characterized by their great length and slender appearance. In this respect they closely resembled the Oxford specimen, particularly the tibiae, which are similarly curved and possess small upper extremities. On the anterior border of the inferior extremity there is a slight appearance of a facet for the astragalus, but the latter bone on neither side shows a corresponding facet.

The scapulae are imperfect; the superior border of one is slightly notched, the other is falciform. The ulnae are curved, as in the Oxford specimens.

No. 680B. The same remarks apply to this specimen. The bones are those of a young male, and the epiphyses are not united. The measurements appended are therefore only approximate. On the anterior border of the right inferior tibial epiphysis there is a facet for the neck of the astragalus, and on the necks of both astragali corresponding facets are present. The scapulae are small, the upper borders notched. In both humeri the olecranon fossae are perforated. The ulnae are curved.

In the collection of Dr. Barnard Davis there is the humerus and femur of a Veddah, of which the measurements are given.

Subjoined is a table of the measurements of the skeletons.

¹ A similar arrangement of facets has been noted in many instances in savage and prehistoric races. See Arthur Thomson on the "Influence of Posture on the form of the articular surfaces of the Tibia and Astragalus in the Different Races of Man and the higher Apes." "Journal of Anatomy and Physiology," vol xxiii, p. 616.

MEASUREMENTS OF PELVIS OF OXFORD SKELETON.

External Dimensions		Dimensions of Cavity of true Pelvis.		Dimensions of Individual Bones.	
Breadth of Pelvis...	mm.	Transverse Diameter...	mm.	Height of Ilium...	mm.
Height of Pelvis...	230	Conjugate Diameter...	99	Breadth of Ilium...	115
Breadth - Height Index...	188	Pelvic Index...	102	Iliac Index...	129
Breadth between Ant. Sup. Spines...	81.7	Oblique Diameter - right...	99	Breadth of Innominate Bone...	158
Post. Sup. Spines...	178	Oblique Diameter - left...	99	Length of Os Pubis...	57
Iachial tubercities...	93	Inferior Sagittal Diameter...	108	Pube - Innominate Index...	88
" spines...	55	Coccygeo-Pubic...	77	Length of Ischium...	81
G-diameter of Cotyloid cavity...	48	Intertuberal Diameter...	77	Innominate Index...	93.7
Vertical of Obturator Foramen...	48	Depth of Pubic Symphysis...	22	Ischic Innominate Index...	43.4
Transverse of Obturator Foramen...	30	Depth of Pelvic Cavity...	81	Length of Sacrum...	101
Obturator Index...	63.5			Breadth of Sacrum...	103
Subpubic Angle...	55			Sacral Index...	96

	Oxford Skeleton.	R.C.S.		B. Davis' Collection.
		680A	680B	
Clavicles—				
Length { right	122			
left	132			
Scapulae—				
Vertical length { right	135			
left	135			
Width { right	96			
left	96			
Scapular Index...	71.1			
Infraspinous Index...	98			
Humeri—				
Maximum length { right	323	285	277	304
left	323	262	278	
Radii—				
Maximum length { right	253	225	225	
(including styloid) { left	251	232		
Radio-Humeral Index...	78.3	78.9	81.5	
Ulna—				
Maximum length { right	271			
(including styloid) { left	268			
Femora—				
Maximum length in oblique position { right	488	414	415	436
left	470	414	412	

	Oxford Skeleton.	R.C.S.		B. Davis' Collection.
		680A	680B	
Tibiae—				
Length, not including spine { right	396	350	354	
{ left	399	350	350	
Tibio-Femoral Index....	84.3	84.5	85.3	
Intermembral Index....	66.2	66.7	65.4	
Femoro-Humeral Index	68.7	68.8	68.7	
Fibulae—				
Maximum length { right	381			
{ left	384			
Pes—				
Length { right	212			
{ left	210			

The skeleton, having been carefully articulated under the direction of Mr. Charles Robertson, was found to measure 5 feet 2½ inches, or 1,578 mm. The descriptions of different observers vary much in detail but agree fairly as regards stature. Davy¹, in speaking of the Village Veddahs, to whom the Rock Forest or Wild Veddahs are closely allied, describes them as generally small, 5 feet 3 inches to 5 feet 5 inches, slender, muscular and well-made. Tennent² writes of the Village Veddahs "as miserable objects, active but timid, and athletic, though deformed, with large heads and misshapen limbs." Forbes³ thus pictures them: "And such of them (the Veddahs) as I have seen do not in any respect differ from what other natives would become if compelled to use the same exertions, to endure the same privations, and, like them, to live as wanderers in a forest wilderness."

Percival⁴ notes them as being "remarkably well-made." Pridham, quoted from Virchow⁵, says, "They are not more than 5 feet 2 inches in height, their hands small, but their feet were long and flat."

Gillings, quoted from the same authority, describes them (the Veddahs) as "mostly low in stature, but some of them are strong, active men."

Baily⁶ delineates them as "short, more slightly built, yet very

¹ *Loc. cit.*

² *Loc. cit.* Vol. ii, p. 449.

³ "Eleven Years in Ceylon." Vol. ii, p. 76.

⁴ "An Account of the Island of Ceylon." London, 1805, p. 283.

⁵ *Loc. cit.*, p. 41.

⁶ "Transactions Ethnological Society." New Series, Vol. ii, 1863, p. 278.

active, though far from being muscular, their limbs are firmly knit together, and they are athletic, and capable of enduring great fatigue. Though spare they are generally in good condition, and look more healthy than many of the Singhalese."

He gives the following measurements:—The tallest male from Bintenne he measured was 5 feet 3 inches, the shortest 4 feet 1 inch. Average male height from 4 feet 6 inches to 5 feet 1 inch. Average female height, 4 feet 4 inch to 4 feet 8 inches.

Of 14 male Veddahs from Bintenne the tallest measured 5 feet 3 $\frac{1}{2}$ inches, the shortest 4 feet 6 $\frac{1}{2}$ inches; the average equalled 5 feet $\frac{1}{2}$ inch. Of 12 females the tallest was 5 feet 2 $\frac{1}{2}$ inches, the smallest 4 feet 4 $\frac{1}{2}$ inches, the average 4 feet 9 inches.

To Hartshorne¹ we are indebted for fuller details as regards their proportions. The tallest specimen he met with measured 5 feet 4 $\frac{1}{2}$ inches. He gives the height of Latty, age about 18, as 5 feet 4 $\frac{1}{2}$ inches, and Bandiey, age about 25, as 4 feet 11 $\frac{1}{2}$ inches. Of these latter he gives further measurements.

Height	Latty.		Bandiey.	
	ft. in.	mm.	ft. in.	mm.
— top of forehead to bottom of chin	5 4 $\frac{1}{2}$ or	1631·91	4 11 $\frac{1}{2}$ or	1517·59
Across face	0 6 $\frac{1}{2}$ or	168·25	0 7 or	177·80
Shoulder to elbow	0 5 $\frac{1}{2}$ or	133·34	0 6 $\frac{1}{2}$ or	171·42
From elbow to wrist	0 11 or	279·89	0 12 $\frac{1}{2}$ or	323·81
On to end of middle finger	0 10 or	254·0	0 8 $\frac{1}{2}$ or	19·05
Round biceps of right arm	0 7 $\frac{1}{2}$ or	196·82	0 6 $\frac{1}{2}$ or	174·59
" " left arm	0 10 $\frac{1}{2}$ or	260·34	0 9 $\frac{1}{2}$ or	241·28
Round muscle of right forearm	0 10 $\frac{1}{2}$ or	263·51	0 9 $\frac{1}{2}$ or	241·28
" " left forearm	0 8 $\frac{1}{2}$ or	222·22	0 8 $\frac{1}{2}$ or	222·22
Round chest	0 8 $\frac{1}{2}$ or	222·22	0 8 $\frac{1}{2}$ or	222·22
Length of thigh	0 31 or	787·39	0 29 $\frac{1}{2}$ or	749·27
From knee to ankle	0 16 $\frac{1}{2}$ or	425·41	0 16 $\frac{1}{2}$ or	419·37
Calf of leg in girth	0 16 $\frac{1}{2}$ or	412·73	0 15 $\frac{1}{2}$ or	393·67
Sole of foot	0 11 $\frac{1}{2}$ or	298·41	0 11 $\frac{1}{2}$ or	292·07
Round head at middle of forehead	0 9 $\frac{1}{2}$ or	241·28	0 8 $\frac{1}{2}$ or	222·22
	0 20 $\frac{1}{2}$ or	514·33	0 20 $\frac{1}{2}$ or	514·33

From the foregoing measurements of height Virchow² arrives at the following averages:—Males, 1,537 mm. females 1,448 mm. and concludes that the Veddahs are allied to small not to say pigmy races.

With regard to the measurements of Latty and Bandiey given above, their utility is sadly impaired by the absence of details as to the methods employed and the points taken. Moreover, as Virchow has pointed out, errors appear to have crept in, in proof

¹ "Fortnightly Review," Vol. xii. New Series, 1875, p. 409.

² *Loc. cit.*, p. 40.

whereof he points out that the measurement of the distance from shoulder to elbow in the smaller man exceeds by 44 mm. the same length in the taller man, whilst the entire length of the arm of the short man is less by 13 mm. than that of the taller individual. He also criticises in a similar manner the measurements across the face.

In regard to the question of stature it must not be forgotten that many of the so-called aborigines of Southern India, whose claim to be so described is disputed by Crawford, are no taller, if as tall, as the average Veddah, so that in this respect we cannot claim any unusual distinction for the aborigines of Ceylon.

As regards the relative proportions of the different members to the body height, we have unfortunately little material to work on. In the Oxford skeleton only can we arrive at any definite statement of the proportions of the limbs to the height, and here we are apparently dealing with an individual variation, for the length of the tibia is quite unusual.

The length of the femur is relatively great. Taking the height at 1,578 mm., its proportion to the skeleton is as 29.5 is to 100.

In the case of the other long bones of which we have measurements at our disposal we have unfortunately no knowledge of the height of the individuals to which they belonged. The males vary from 4 feet 1 inch to 5 feet 4½ inches. Assuming the average to be 1,537 mm., as Virchow has stated, we shall have to deduct 35 mm. as allowance for soft parts before we can compare the lengths of the femora with the height of skeleton.

In both the specimens at the College of Surgeons the proportion is as 27.6 to 100; No. 680B, however, is the skeleton of a youth. The femur in the possession of Dr. Davis bears the proportion to the average height of *skeleton* (1,500 mm.) of 29 to 100.

Topinard¹ gives the proportion of the femur to the height as 27.1 in Europeans; 4 blacks of India, 27.8; 3 Australians 27.6; 32 African negroes, 27.9.

This excessive length of thigh in the Veddah is confirmed by an inspection of the photographs sent to Professor Rolleston by Mr. Hartshorne. Nor does it appear that this peculiarity is confined to these people alone, for the same condition appears to hold good in many of the aborigines of India, as proved by approximate measurements made from the photographic illustrations of the people of India,² especially those of the Coromandel Coast.

Unfortunately we cannot make much use of the measurements

¹ "Elements d'Anthropologie Générale." Paris, 1885, p. 1041.

² "People of India," Watson and Kaye.

of Latty and Bandiey given by Hartshorne in the *Fortnightly Review*, as we have no data as to the points taken. It may be noted, however, that whilst there is a difference of $4\frac{1}{2}$ inches between the height of the two men, the length of the thighs only differs by $\frac{1}{2}$ inch.

	Humerus, length.		Radius, length.		Radio- Humeral Index.	Femur, length.		Tibia, length.		Tibio- Femoral Index.	Inter- Membral Index.	Femoro- Humeral Index I.
	r.	l.	r.	l.		r.	l.	r.	l.			
Oxford	323	323	253	251	78.3	468	470	395	399	84.8	66.2	68.7
B. Davis	324	...	...	...	...	436	...	...	...	...	...	...
R.C.S., 680a	285	282	225	223	78.9	414	414	350	350	84.5	66.7	68.8
R.C.S., 686a	237	278	226	...	81.5	415	412	354	350	85.3	65.4	68.7
Average	...	...	...	...	79.5	...	...	...	...	84.8	66.1	68.0

In regard to the radio-humeral index, the average of the three skeletons, as above, yields an index of 79.5. Topinard¹ gives the average of thirty-two African negroes as 79.0, Tasmanians next with an average of 78.7. Four Hindoos yield a mean of 77.2, whilst the average of 85 articulated European skeletons is 72.5. The above figures are therefore in accord with the statement that in the black races generally the antebrachial index is high, and that the relative length of the radius to the humerus is great, a character in which they resemble the anthropoids.

In like manner the tibio-femoral index of the three Veddahs is 84.8, agreeing with the statement² that in the black races the index is high. The relatively great length of the tibia has been already referred to in the foregoing description. Adopting the nomenclature suggested by Turner³ the skeletons are Mesatikerkic and Dolichonemic. In regard to the intermembral index given above, 66.1, it is lower than the average European, which Turner⁴ quotes as 69.5. The index of a Sikh given by B. Davis is 65.8, whilst that of a Malay measured by Turner is 67.7. A low index points to a relatively shorter upper limb. In the black races the humerus is usually relatively shorter than the femur, as indicated by a low femoro-humeral index. 72.5 is the mean of Europeans. The index of the three Veddahs is 68.

Malays and natives of India generally have a low femoro-humeral index. Broca⁵ has described two skeletons of Mara-

¹ *Elements d'Anthropologie G n rale*. Paris, 1866, p. 1043.

² *Loc. cit.* p. 1044.

³ *Report on Human Skeletons*. "Challenger Reports" vol. xvi.

⁴ *Loc. cit.* p. 610.

⁵ *Squelette Humain*. Bull. d.

ht. February, 1878.

vars, between which and the foregoing there are certain points of agreement. The antibrachial index of his male is 80, of his female skeleton, 81.1; in stature, both are small. The male measures 1,475, the female 1,537 mm.

Proportions of the Head and Trunk.—The distance, measured in the Oxford skeleton after articulation, from the seventh cervical spine to the lower border of the fifth sacral segment equals 459 mm. From the level of the vertex above to the same point below equals 669 mm. The proportion of the trunk to the height is as 29 is to 100.

As peculiarities in the skeletons may be noticed the foramina in the olecranon fossæ of the humeri of No. 680B. Reference has been already made to the question of greater development of the left as compared to the right arm. Authors have attempted to explain this by the use of the bow, but whilst the extensors might be more largely developed in the left arm one would naturally expect a corresponding increase in the flexors of the right arm, the muscles brought into play in drawing back the arrow. Hartshorne¹ alludes to another peculiarity he observed, viz., "their sharply pointed elbows." There is nothing in the formation of any of the bones I have examined to explain this appearance.

The same author makes a statement to the effect that the Veddahs are characterised by "the comparative shortness of their thumbs." With the object of testing this I have measured the lengths of the thumbs and fingers, including the metacarpals and phalanges, the points taken being from the centre of the dorsal margin of the base of the metacarpal bone to the tip of the ungual phalanx. The measurements are:—

	Right hand.	Left hand.
Thumb	95 m.m.	95 m.m.
Index finger	141 "	140 "
Middle "	149 "	148 "
Ring "	137 "	138 "
Little "	113 "	111 "

As will be seen from these figures, there is no evidence to confirm the above statement.

In regard to the length of the hand, Mugnier² has pointed out

¹ *Loc. cit.*, p. 409.

² "La main et la taille d'Indigènes Asiatiques." *Mem. de la Soc. d'Anthr.* Paris. 2^e Serie, tome iii.

that the absolute length of the hand in the Asiatics he measured is always less than that of Europeans.

The tibiae are very remarkable not only in regard to length, but also in the peculiarity of their form. They are not platycnemic as their indices show.

The measurement of the various tibiae examined, taken at the level of the nutrient foramen, is as follows:—

		Transverse Diameter.	Antero- Posterior Diameter.	Index of Platycnemia.
		mm.	mm.	mm.
Oxford specimen	{ right	24	31	77.4
	{ left	22	30	73.3
Royal College of Surgeons	{ 680a { right	21	25	84.0
	{ 680a { left	20	27	74.0
	{ 680b { right	20	28	71.4
	{ 680b { left	19.5	29	67.2

A low index indicates a relative increase in the antero-posterior diameter with attendant flattening of the shaft. Tibiae, with an index above 69, do not display any such tendency, and may be regarded as triangular in form.

The shafts of the bones, however, display a somewhat more extensive surface than usual for the attachment of the posterior tibial muscles. Manouvrier¹ has recently pointed out that the platycnemic form of tibia is dependent on an excessive development of the tibialis posticus muscle, and he points out that the increase in the antero-posterior diameter of the bone all takes place behind the interosseous ridge. He considers this excessive development of the muscle a sufficient cause, and in proof thereof avers that we meet with this form of tibia more frequently in races which inhabit mountainous countries, or in those who lead the lives of hunters. He contrasts the platycnemicism of man and the anthropoids, and points out that they do not depend on the same cause; hence he does not regard the occurrence of platycnemicism in man as a sign of degradation.

The chief point of interest in regard to the foot attaches to the presence of the facets on the astragalus and tibia, to which reference has been already made. The facets are apparently associated with an extreme amount of dorsi-flexion of the foot. Bennett² records a curious custom at one time prevalent among his people, namely, that of holding the bow with the foot. This

¹ "Mémoire sur la Platycnémie." *Mém. de la Soc. d'Anthrop.* Paris, 2^e Serie, tome III, p. 403.

² *Tribes of the Pacific*. Vol. I, p. 400.

doubtless, might account for such an arrangement of facets. Unfortunately, however, Hartshorne¹ referring to this matter says, "But at the present time, at any rate, this practice is entirely unknown, and it is difficult to understand how or why it should ever have existed." The same doubt seems to attach to their powers as climbers. Percival² evidently regards them as experts, for he details how "the Beddah climbs up the tree with the utmost expertness and celerity." Hartshorne³ on the other hand, writing in regard to their feet, says, "They have, in fact, no exceptional prehensile power in their feet, and they are bad climbers." However this may be, there seems to be little doubt that these facets are associated with some unusual posture, and in all probability they are due to the squatting position in which they sit. I have observed a similar arrangement of facets in two Australians, one male Andaman, and a new Caledonian, and it is worthy of note that such a condition is normal in the foot of the Bornean Orang.⁴

In regard to the greater length of the second toe as compared with the first, reference may be made to a paper by Mr. J. Park-Harrison, read at the meeting of the British Association at Southport in 1883. He found that the Tahitians, savage Islanders, Javanese, New Hebrideans, and New Caledonians possess this characteristic. Amongst Africans instances of its occurrence are rare.

Crania (Oxford Specimens).

No. 736.—This, the skull of an adult male which belonged to the Greenwell Collection, was obtained by Lieutenant A. F. Perkins, of the Ceylon Rifle Regiment, from a native Ceylonese chief. Cranial capacity, 1,430 cc. The skull is strong and heavy. In the upper jaw only the second premolar and first and second molars are present on either side. In the lower jaw, on the left side, the second premolar and first molar are *in situ*, on the right side, all the molars and second premolar are in position. All the alveoli of the other teeth are open. The teeth present are large, ground flat on the crowns, and present no appearance of decay.

Norma lateralis.—The frontal tubera are very prominent, giving a very vertical appearance to the forehead, thence the curve sweeps gently back to the region of the obelion, at which point it suddenly turns vertically downwards towards theinion, whence it passes horizontally forward; in other words, the

¹ *Loc. cit.*, p. 408.

² "An Account of the Island of Ceylon." London, 1805, p. 285.

³ *Loc. cit.*, p. 408.

⁴ "Journal of Anatomy and Physiology," vol. xxiii, p. 616.

cranium may be described as flat in the frontal region, over the vertex, and on the upper and lower occipital squamæ, with the angles rounded off. There is a shallow post-coronal depression extending some distance across the vertex.

Norma verticalis.—Long and narrow; cephalic index 68.8. The parietal eminences are well-marked and placed far back; behind them the skull narrows rapidly towards the upper occipital squama. The skull is cryptozygous.

Norma occipitalis.—Well-marked pentagonal form.

Norma basalis.—Foramen magnum, nearly circular, 35 × 33 mm., directed slightly forwards; the condyles are placed very obliquely.

Norma frontalis.—Frontal region narrow, flat in the region of the glabella, and with but slight indications of superciliary ridges; orbits not large, are of rectangular form. Malars not projecting.

Sutures.—Complex, simple at obelion and bregma. The lower part of the coronal suture on the right side is synostosed; a triangular epipteric is present in the right pterion, evidently the separated superior angle of the alisphenoid.

Processes.—Mastoids well-developed; the external occipital protuberance pointed; styloids long and entire. External pterygoid plates narrow.

Muscular impressions.—Faintly marked. Lower jaw, small; slight mental projection.

No. 737.—Cranium of an adult female obtained by Lieutenant Perkins from a native chief, and presented by him to Canon Greenwell. Cranial capacity, 1,390 cc.; only the first and second molars on either side are *in situ*. All the alveoli are still open. Teeth present, large, healthy, and ground flat on the crowns.

Norma lateralis.—Frontal tubera fairly prominent. The slope is more gradual towards the vertex than in No. 736; so also from the obelion to theinion the curve is more rounded; thence it passes more abruptly forward.

Norma verticalis.—Remarkably long and narrow; cephalic index, 67.8. There is little increase in width over the parietal eminences, which are poorly developed. Cryptozygous.

Norma occipitalis.—Of pentagonal form, with well-marked vertex; the greatest diameter exceeds the asterionic by only 22 mm.

Norma frontalis.—Frontal region narrow, eminences fairly flat, glabella flat, slight superciliary projection internally. The vertex in the region of the sagittal suture there is a slight ridge. Orbits large and more rounded than in the male. Nasal bones small, malars flattened and

Norma basalis.—Foramen magnum 36 × 28 mm., somewhat diamond-shaped; looks directly downward.

Sutures.—Much more simple than in No. 736; small wormian bones are present in the postero-lateral fontanelle.

Processes.—Mastoids small, external occipital protuberance slightly projecting, external pterygoid plates broad, sphenoidal spine prominent on the left side.

Muscular impressions.—Scant; surface as a rule smooth.

No. 738.—This skull was presented to Professor Rolleston by Mr. W. Sabonadiere, who obtained it from Mr. Henry Mooyaart, Government Agent of the Province of Ouhah. The latter gentleman forwarded to Mr. Sabonadiere a report in Singhalese from the headman of the district, of which the following is a translation:—"Ridimaliadda R.M. reports that according to orders given by your honour on your last visit, the skull of Kapura Gammaleh, a genuine Veddah of the age of 80 or 90 at his death, and a resident of Belagama in Bintenna, has herewith been forwarded," dated January 13th, 1864. The cranium is evidently that of an aged person. Capacity, 1,350; the teeth are absent, and the alveoli completely absorbed.

Norma lateralis.—The form of the cranium resembles closely those already described. The curve of the vault is more general throughout, the frontal eminences less prominent. In the occipital region there is a tendency to flattening. The external occipital protuberance is V-shaped and strongly marked.

Norma verticalis.—The skull presents a remarkable appearance. The greatest length is 187 mm. The greatest breadth taken over the situation of the parietal eminences is only 120 mm. From this it will be gathered that these prominences are scarcely, if at all, developed. The cephalic index is extremely low, 64.5, the lowest in the series belonging to the Oxford collection, and lower considerably than those described by Virchow, Flower, or B. Davis. Cryptozygous.

Norma occipitalis.—Forms a well-marked arch with parallel sides, the mastoids projecting somewhat below.

Norma basalis.—Foramen magnum long and narrow, 37 × 23 mm., directed slightly forward. The condyles are curiously formed; they are very small. The articular facets, measuring 17 mm. long by 11 mm. wide; their inner borders are placed parallel to each other, and their anterior extremities are 22 mm. apart. They might be better described by stating that it appears as if only the posterior half of the condyle had been developed, the anterior half with its articular surface being absent.

Norma frontalis.—The frontal width is greater than in the foregoing specimens. The superciliary ridges are more pro-

A. THOMSON.—On the Osteology of the

rounded than is usual in these skulls, the frontal eminences
Glabella prominent. Orbits relatively large. Malars
appressed. Nasal bones curved and projecting.

Sutures.—Synostosis has taken place throughout the entire
length of the sagittal suture, in the lateral parts of the coronal,
and in the upper part of the lambdoid.

Processes.—Mastoids strong, external occipital protuberance
projecting, external pterygoid plates broad with pointed pro-
cesses. Sphenoidal spine large; grooved foramen spinosum.

Muscular impressions.—Well-marked temporal ridges. The
different surfaces for muscular attachment on the occipital bone
are strongly indicated.

No. 739 is the cranium of a male of middle age presented to
the museum by Mr. B. F. Hartshorne. Cranial capacity,
1,395 cc. All the teeth are lost except the second left molar,
the crown of which begins to show evidence of wear. The
alveoli of all the remaining teeth are perfect.

Norma lateralis.—The superciliary ridges are strongly marked,
the frontal tubera but slightly; the curve from ophryon to
inion is more general throughout, there being but a slight
increase in prominence at the obelion. The external occipital
protuberance lies within the maximum length, and is not
strongly marked.

Norma verticalis.—The skull is long but the parietal tubera
are outstanding; the temporal fossæ are deep, and the temporal
ridges on either side pass within 42 mm. of the sagittal suture.
Phænozygous.

Norma occipitalis.—Pentagonal in form. The upper and lower
occipital squamæ are compressed laterally so as to cause the
maximum occipital point to form a marked projection, below
which we have the external occipital protuberance.

Norma basalis.—Foramen magnum, oval, 36 × 28 mm.,
looks directly downward.

Norma frontalis.—Glabella prominent, superciliary ridges
strongly marked, nasal bones curved and projecting, orbits of
square form. Malar bones and zygomatic arches more projecting,
as will be seen by a reference to the table; the interzygomatic
and outer malar widths are greater than in other members of
the series measured.

Sutures.—Much serrated. Frontal suture persistent. Epipteric
bones are present on both sides. These are of large size and
correspond either to the separated anterior inferior angle of the
sietal or to the upper angle of the alisphenoid. On either
in the angle between the squamous and mastoid temporals
is a small wormian bone. In the right sietian there is a
plan bone.

Processes.—Mastoid of medium size. External pterygoid plates broad with pointed processes on the posterior border.

Muscular impressions.—The temporal ridges pass up on the parietals to a higher level than usual. The inferior squama of the occipital bone is rough.

No. 740.—Cranium obtained from Mr. B. F. Hartshorne, probably that of a male about middle life. In regard to Nos. 739, 740, and 743, Mr. Hartshorne writes (date April 29th, 1872):—"I am glad to say that I am sending you three Wedda skulls; but one is broken, and I could not get lower jaws. I also send some bones; all the bones in the box are Wedda bones. They come from the country of the Jungle Weddo, and I am certain of their authenticity, as I know the country, and got the skulls and bones from the headman of the district, who could have no means of getting any skulls of any one but Weddo. There is one man called Heen Appa, who lives on the borders of the Weddo country by himself; he has land, and is specially charged by Government to look after the Weddo. His chief duty is to bury their dead, in order that wild beasts may not prey upon them, and when a Wedda dies, the others come and tell him, and he goes and buries the body. The Jungle Weddo will not go near a dead body. I employed this Heen Appa to get the skulls; he is trustworthy."

The capacity of this cranium is 1,330 cc. There are no teeth; the alveoli corresponding to the premolars are absorbed.

Norma lateralis.—The appearance of this skull closely resembles that of No. 736, though it is hardly so flat on the vertex. The forehead is vertical, and the frontal tubera prominent; the lower occipital squama is more convex.

Norma verticalis.—The parietal eminences are outstanding, the width, 134 mm., relatively great to the length, so that the index, 76.1, is somewhat higher than most of the others. It is exceeded only by No. 743 in this collection, which, however, is injured. Cryptozygous.

Norma occipitalis.—Greatest width at parietal eminences.

Norma basalis.—Foramen magnum, 34 × 31 mm. It approaches in shape the diamond form, the posterior angle being rounded off, directed very slightly forward. There is a very large jugular fossa on the right side.

Norma frontalis.—Frontal eminences prominent, forehead smooth, no superciliary ridges; orbits more rounded. Nasal bones wanting; malars appressed.

Sutures.—Simple; a large epipteric is present on either side similar in form and size to those in No. 739. A small interparietal bone is present.

Processes.—Small mastoids; narrow external pterygoids, slight

mal spines. Little evidence of strong muscular develop-

741.—This cranium was presented by Mr. Hartshorne to museum. A peculiar interest attaches to it, as there appears good evidence for stating that it is the skull of Latty, killed and measured by Mr. Hartshorne in the *Fortnightly Review*, March, 1876. In support of this, the following evidence has been submitted. Copy of a letter of date January 17th, 1876:—“In obedience to your order of the 8th instant, I beg to submit the following with reference to the skull I sent you some time back. The skull was that of a Wedda called Latha. He lived at Kandapolapelle of Sujambala-winnegama, in Bintenna, age 19 years—died in 1873. He was of Morane race—was sick of worm complaint for three days.—Signed, Bidemaliyadde, R.M.”

In reference to the above, Mr. Hartshorne, in a letter dated March 2nd, 1876, writes to Professor Rolleston, as follows:—

“The man who got it is an excellent native chief, who is the man who can do anything with the Weddas. He is the allyade (Ratamahameya), and you have got a Sinhalese of his which you once showed me. . . . I think it of a man whom I knew very well and of whom I have a photograph. . . . I described him in 1872 as aged 18, and he died in 1873 aged 19. . . . You will account of him and all his measurements in the *Fort-*

nightly Review for this month, pp. 408 and 412. This all makes the skull very curious and interesting. The word Latha in the letter is the same as Latty (the final y being pronounced like the word ‘eye’). It is the Sinhalese form of the Wedda word, as the termination ‘eye’ is quite unknown to Sinhalese nouns.”

The capacity is 1420 cc. The teeth present show little evidence of wear and no signs of decay. The incisors, the left canine, and the third left molar are wanting; their alveoli, however, are present.

Norma lateralis.—Presents the characteristic elongated form. Vertical superciliary ridges slight. Frontal tubera fairly marked—battered over the vertex and in the region of the External occipital protuberance not prominent in itself, and apparent by the moulding of the occipital squamae. Vertical. Parietal tubera prominent; temporal ridges on the vertical aspect. Cryptozygous.

Norma occipitalis.—Occipital pentagon well-marked. Parietal

very likely that the head man mentioned above is the same as that a Mr. Bidemaliyadde obtained his specimen, No. 733, presented by him to Professor Rolleston.

eminences outstanding, the sides slightly converging below their level.

Norma basalis.—The inferior squama of the occipital bone is so moulded that it is concave between the two curved lines, especially near the external occipital protuberance, convex between the inferior curved line and the foramen magnum. Foramen magnum of oval form, slightly encroached upon by the condyles anteriorly, measures 35×30 mm.; its plane has a slight forward inclination.

Norma frontalis.—Forehead narrow, glabella well-marked, superciliary ridges comparatively slight. The orbital margins are thick, however; orbits comparatively large, nasal bones curved and projecting, malar bones not projecting.

Sutures.—Complex, simple at obelion and at lower parts of coronal. Numerous small wormian bones on the lateral parts of the lambdoid suture.

Processes.—Mastoids small; sphenoid spines long and curved forward. External pterygoid plates not broad, but deeply notched on the posterior border.

Muscular impressions.—The temporal fossæ, as defined by the upper temporal ridges, are extensive, and pass up on to the vertical aspect of the cranium. Other indications feeble.

No. 742.—The skull of an adult female. I can obtain no further information regarding this skull than that it was received on February 10th, 1874. The cranium is small, its capacity measures 1,205 cc. Only the first molars on either side remain *in situ*; none of the alveoli are absorbed. The teeth present are moderately worn.

Norma lateralis.—Precisely similar in form to the preceding No. 741. Forehead vertical, low; frontal tubera prominent; very slight orbital ridges. Occipital tubercle faintly marked.

Norma verticalis.—Parietal eminences prominent. Cryptozygous.

Norma occipitalis.—Pentagonal in form.

Norma basalis.—Injured.

Norma frontalis.—Glabella well-marked; slight superciliary prominence over the inner side of orbit; frontal tubera pronounced. Face small; malar bones small and appressed; orbits of square form.

Sutures.—Comparatively simple.

Processes.—Mastoids small; narrow pterygoids.

Muscular markings faint.

On the right side immediately below the parietal eminence there is a circular spot about the size of a shilling, where the bone is eroded superficially by disease; the bone round the margin of this area is somewhat thickened.

No. 743.—This calvaria, probably that of an aged female, is much injured; the greater part of the base is wanting. Mention has been already made of this skull in the description of No. 740. It appears to have been artificially compressed, producing a well-marked flattening on the left side posteriorly and on the right side anteriorly. The sagittal suture is almost obliterated. In the *norma verticalis* it appears relatively broad. The cephalic index, 77.5, being the highest of these belonging to the Oxford collection. The foramen magnum is of diamond shape, 35×28 mm.

No. 836E.—This is the skull of the skeleton already described. It is in a perfect state of preservation, all the teeth are *in situ* in both upper and lower jaws; they are small, in perfect condition, and but slightly worn. The cranial capacity measures 1,265 cc.

Norma lateralis.—Forehead vertical, frontal tubera well-marked, the curve of the vertex is not so flattened as in the other specimens. The highest point corresponds to the bregma. The occipital point falls considerably beyond the external occipital protuberance.

Norma verticalis.—Long and narrow, widest at parietal tubera, slightly flattened behind on the left side over the upper occipital squama and the portion of the parietal bone posterior to the tubera. Cryptozygous.

Norma occipitalis.—Well-marked pentagon, tendency to a ridge at the sagittal suture.

Norma basalis.—Foramen magnum oval, 33×25 mm., plane directed slightly forward.

Norma frontalis.—Forehead smooth narrow, frontal tubera prominent, only the slightest indication of superciliary ridges; nasal bones small but prominent; malars small and appressed; orbits more circular in form than in most of the specimens; nasal spine prominent.

Sutures.—Simple; fusion between basi occipital and basi sphenoid complete; in the left orbit the suture over the infra-orbital canal is still visible.

There is a wormian bone in the left asterion.

Processes.—Mastoids small. Sphenoidal spines large. External pterygoid plates narrow and margin comparatively regular.

Muscular impressions faint. In regard to the teeth of this specimen, which are in a perfect state of preservation, it may be worthy of note that in the three upper molars there are four distinct cusps, in the lower molars the first only possesses five cusps, the second and third only four cusps each. There is little difference in size between the second and lower molars; the second lower molar is rather larger than the second upper.

Lower jaw of small size and feeble development.

I have incorporated in this report the crania in the collection of the Royal College of Surgeons, and those in the possession of Dr. Barnard Davis. In regard to the former, I have to express my thanks to Professor Stewart, the Curator, for opportunities of examining a number of specimens which have been added to the museum since the publication of the last catalogue. In the table of measurements appended I have also included the crania described by Professor Virchow in his monograph.

Nine skulls in all belonging to the Oxford collection were examined, of that number probably six were male and three female. All were adult, and one, No. 738, was the cranium of a male stated to be eighty or ninety years of age. In the imperfect calvaria, No. 743, synostosis has taken place along the line of the sagittal suture. In all the other specimens, with one exception, where the teeth are absent, all the alveoli are still open. The exception referred to is No. 740, where the premolars have been shed during life.

The cranial capacity ranges from 1,430 cc. in a male (736) to 1,205 cc. in a female (741). The average of the six males = 1,365 cc. The male described by Virchow measured 1,360 cc. The mean capacity of the ten male skulls in the museum of the Royal College of Surgeons is 1,290 cc. The three males in the collection of B. Davis yield an average of 1,415 cc., but this includes a specimen with the exceptionally large capacity of 1,611 cc. In all twenty male crania have been measured, of which the average capacity is 1,336 cc. Two only of the females in the Oxford collection could be accurately measured, of which the mean is 1,297 cc. The two described by Virchow average 1,137 cc. Of three in the R. C. S. collection the mean is 1,108 cc.; but it is worthy of note that one of these, No. 679, is one of the smallest adult skulls on record. Five females measured by B. Davis yield an average of 1,258. The average of the twelve female crania noted above equals 1,207 cc., showing a difference of 129 cc. between the capacities of the males and females.

As, however, the male skull belonging to the collection of B. Davis is quite exceptional in regard to capacity, 1,611 cc., being 246 cc. in excess of the average, I have withdrawn it and find that the average of the nineteen remaining skulls is 1,321 cc. Similarly the exceptionally small female skull in the R. C. S. collection has not been included in the average of eleven females which equals 1,229 cc., a result which is probably more approximately correct. The difference between the male and female cranial capacities is therefore 92 cc. The skulls as a whole, therefore, are microcephalic, though of the twenty-seven crania measured, eight male skulls measure 1,350 cc. and

ards, and are therefore mesocephalic; of this number one, that belonging to B. Davis, is megacephalic. Two females in series are mesocephalic. Contrasting the cranial capacity of this race with other races of small stature, we find that the average capacity of the male Andaman is 1,244 cc. The mean of five Bush skulls described by Turner¹ is 1,281 cc. The Akkas described and figured by Professor Flower² have a capacity, the male of 1,102 cc, the female of 1,072 cc. No male Veddah is the same as the former, but there are two females in the thirty-one crania examined which are smaller than the female Akka, viz., one described by Virchow, the capacity of which is 1,025 cc., and that already referred to in the College collection with an internal capacity of 960 cc.

Norma lateralis.—Of eight skulls belonging to the Oxford collection, one (No. 739) rested upon the tip of the mastoids, one (No. 737) on the occipital condyles, the remainder (six) upon the *conspicua cerebelli*.

The glabella-occipital and ophtryo-occipital lengths may be regarded as identical, the difference is so slight. The six males average 182.5 mm. in length, three females 170 mm.

The average basi-bregmatic height of six males in the Oxford collection is 132 mm., of two females the same—yielding an average vertical index of 72.6 in the males, and 74.9 in the females. The males may be regarded as tapeinocephalic, the females as metricephalic. The average vertical index of twenty-one males gives a somewhat higher figure, viz., 74.3, an index which places them in the metricephalic group. Fourteen females average 75.7. The crania then may be regarded as metricephalic. In all the skulls belonging to this collection there was a marked uniformity in the curves of the antero-posterior circumference. The frontal tubera are as a rule prominent, giving a vertical appearance to the forehead, the superciliary ridges being but slightly developed. The curve over the vertex is slight, with in some cases a tendency to flattening associated with a somewhat rapid slope downward from the obelion to the inion. The maximum occipital point in some projects beyond the occipital protuberance, but only to a degree. The cerebellar fossæ are comparatively shallow. It appears as if artificially flattened in the occipital

but two instances the frontal longitudinal arc exceeds the occipital longitudinal arc; in the two exceptions the arcs are nearly equal, the parietal arc is longer than the occipital.

The nasal bones are short, but the bridge is well-formed and prominent, as a rule concavo convex from root to tip.

The gnathic index of the five males averaged 94.2. The mean gnathic index of twelve skulls is 94.7—they belong therefore to the orthognathous group.

Norma verticalis.—Long and narrow, the parietal eminences in most cases pronounced and placed well back. Behind the parietal tubera the cranium slopes abruptly to the upper occipital squama. The greatest width is with two exceptions situated at or near the parietal tubera. In six males the average breadth measures 128 mm., in three females 124 mm. The cephalic index of the six males averages 70.3, of three females 72.8. The average cephalic index of the twenty-one male crania, of which measurements have now been given, is 70.9, of fifteen female crania 73.2. The average index of the males is therefore lower than any of the averages given in the table at the end of the catalogue of the crania in the Museum of the College of Surgeons of England. Therein the average of 27 Eskimo is given as 72.2; 53 Australians, 71; 72 Melanesians, 71.4; 46 Africans, 73.6; 11 Kaffirs and Zulus, 73.1; 6 Bushmen, 76.8. In reference to the above it will be seen that the index of the female crania is higher than the male; taking both together, a total of 36 crania, the index average is 71.8. Turner¹ gives the mean of 37 adult Australians = 70. Of that number 20 were males, with an average index of 69. The females on the other hand yielded a higher index, 72. The Veddahs are therefore not so pronounced in the dolichocephaly as the Australians, though they closely approach them.

Sir William Turner, in discussing the causes of dolichocephaly,² refers to the relative growth of the bones. "Skulls which owe their dolichocephalic proportions to this dominating growth of the two parietal bones, may be said to exhibit parietal dolichocephaly." In the specimens in the Oxford collection the frontal longitudinal arc exceeds in all but two instances the parietal arc, and in the two instances referred to these measurements are equal. We cannot therefore explain the dolichocephaly by an unusual growth of the parietal bones in the present instance.

Of the skulls in the Oxford series two were mesaticephalic. In one instance, No. 738, the index, 64.5, was exceptionally low, and it is worthy of note that in this, the cranium of a person of between 80 and 90 years of age, the sagittal suture, though synostosed, was not completely obliterated, so that we can hardly explain the low index as due to a premature ossification of the suture.

¹ "Challenger Reports," vol. x, "Human Crania," p. 127.

² "Challenger Reports," vol. x, "Human Crania," p. 127.

All the skulls, with one exception (No. 739) are cryptozygous.

In several of the skulls there is a tendency for the temporal ridges to encroach on the vertical aspect.

Norma occipitalis.—Of well-marked pentagonal form, as a rule. In most cases the parietals form a well-marked angle along their line of union at the sagittal suture, and in four specimens this was so marked as to present almost the appearance of a ridge; with two exceptions the greatest width is at or near the parietal tubera. As seen from the back, the cerebellar fossæ are flat and shallow.

Norma basalis.—The cerebellar fossæ in all are narrow and compressed laterally on the inferior occipital squamæ. The foramina magna are, as a rule, elongated, of oval form or diamond shaped. The basi sphenoid is narrow and proportionately long.

Norma frontalis.—Frontal region narrow and not high, but more or less vertical on account of the projection of the frontal tubera. As a rule the superciliary arches are but slightly prominent. The face is short and narrow, the ophryo-alveolar length in no case exceeding 82 mm. The average bi-zygomatic width of six males is 122.5. The bi-zygomatic width in all cases is greater than the stephanic diameter with one exception, the bi-malar and stephanic diameters do not differ by more than 8 mm. The measurements of the naso-alveolar and ophryo-alveolar lengths on No. 738 can not be regarded as trustworthy, as the alveoli of the upper jaw are completely absorbed.

There is no alveolar prognathism. The mean gnathic index of five male specimens is 94.2. Twelve crania yield a mean of 94.2; five females, two in the Oxford collection and three in the College, average 93.6. The crania are therefore markedly orthognathous.

There is some difference in the individual skulls in regard to the projection of the nasal processes of the superior maxilla, a factor on which is dependent the prominence of the lateral nasal margin. The nasal bones are small, in no case do they exceed 22 mm. in length; they are well-formed and usually projecting, their crest being concavo-convex from above downward.

The nasal index of fourteen males, including six Oxford and eight College crania, is approximately 52.7. Out of these fourteen one which is over 53, and which are therefore that at present have not sufficient data to form an average of the five females of which we have the average is 51, two of those

and the nasal

spine prominent, a well-marked ridge indicating the position of the intermaxillary suture immediately below the nasal spine.

The orbits are mostly of quadrilateral form. The average index of the fourteen male specimens as above is 85.1, of five females, 86.8; they are therefore mesoseme. The orbital margins are sharp and thin as a rule, and there is little difference between the male and female specimens. The os planum of the ethmoid is somewhat narrow in front; in two cases it measures 5 and 6 mm. respectively, in its vertical diameter. An infraorbital suture is present in four out of the eight specimens available for examination.

Adopting the nomenclature proposed by Turner¹ in regard to the palato-maxillary index, we find that out of six males two are dolichuranic, two are mesuranic, and two are brachyuranic; the mean index of the six (113) is mesuranic. Of two females one is dolichuranic.

In form the palate is elliptical in five instances, and slightly hyperbolic in three.

There are two lower jaws in the Oxford series. They belong respectively to specimens numbered 736 and 836. Small in size, they are feeble in form, with but slight mental projection; the incisor teeth are set vertically in their alveoli.

Teeth.—In only two specimens could the measurements be taken according to Flower's² formulae. The dental length of No. 741 is 36 mm., its basi-nasal length, 97 mm., yielding an index of 37.1. Similarly in No. 836 the dental length is 37, the basi-nasal 93, the index 39.7. Flower classifies all with an index below 42 as microdont, a group into which the above naturally fall.

From an examination of the alveoli of the upper jaw the fangs of the wisdom teeth appear in most instances to have been fused and conate; in two specimens, however, the alveoli for three separate fangs are distinctly shown.

Sutures.—One skull is metopic. In only two instances is there sagittal synostosis, so that early fusion of this suture can hardly be urged as an explanation of the extreme dolichocephaly. In two of the crania, epipterics are formed in the region of the pterion; on the other hand, the spheno-parietal suture is comparatively wide, averaging 14 mm. in the series. Wormian bones occur as already described.

Processes.—The mastoids as a rule were small and poorly-developed; in only one instance did the skull rest upon the mastoids. In one or two instances the spine of the sphenoid was

¹ "Challenger Reports," vol. x.

² "On the Size of Teeth as a Character of Race" ("Journal of the Anthropological Institute," vol. xiv, 1884, p. 183).

long, and doubtless was connected to the expanded external pterygoid plate by a well-marked pterygo spinous ligament.

Muscular impressions.—There was but faint indication in the series examined of strong muscular development. The skulls as a whole were comparatively smooth, the only point worthy of note was the fact that in some instances the temporal ridges encroached upon the vertical aspect.

The affinities of the Veddahs have been often discussed. The language is admitted to be allied to Tamil, with a certain percentage of words of Sanskrit origin. Professor Max Müller, in discussing the subject of the Veddah language,¹ says, "But I may say so much, that more than half the words used by the Veddahs are, like Singhalese itself, mere corruptions of Sanskrit. Their very name is the Sanskrit word for hunter (veddha), or, as Mr. Childers supposes, vyadha. There is a remnant of words in their language of which I can make nothing as yet; but so much is certain, either the Veddahs started with the common inheritance of Aryan words and ideas, or at all events they lived for a long time in contact with Aryan people, and adopted from them such words as were wanting in their language." Others maintain that in construction as well, the language resembles Sanskrit. This view is supported by Dr. Tylor.² Virchow,³ on the other hand, disputes it on the ground of insufficient proof. In this connection it may be interesting to note that the Wuddiwar, one of the wandering tribes of Southern India, whose language is undoubtedly Dravidian, frequently "act plays derived from the Sanskrit with very considerable skill and power."⁴ How far then this mixture of Sanskrit with the Tamil indicates an Aryan descent or mixture it is difficult to say.

The object of the present paper is rather to discuss the physical affinities of this singular race. If they be a mixed race they have to a certain extent developed into a distinct variety, for so far, as most observers relate, they do not intermarry with the Tamils or Singhalese.

The skulls, of which a very considerable number have now been measured and described, all show a remarkable uniformity.

The most remarkable feature in connection with them is their low cephalic index, their small capacities, and the fact that with one exception they are cryptozygous.

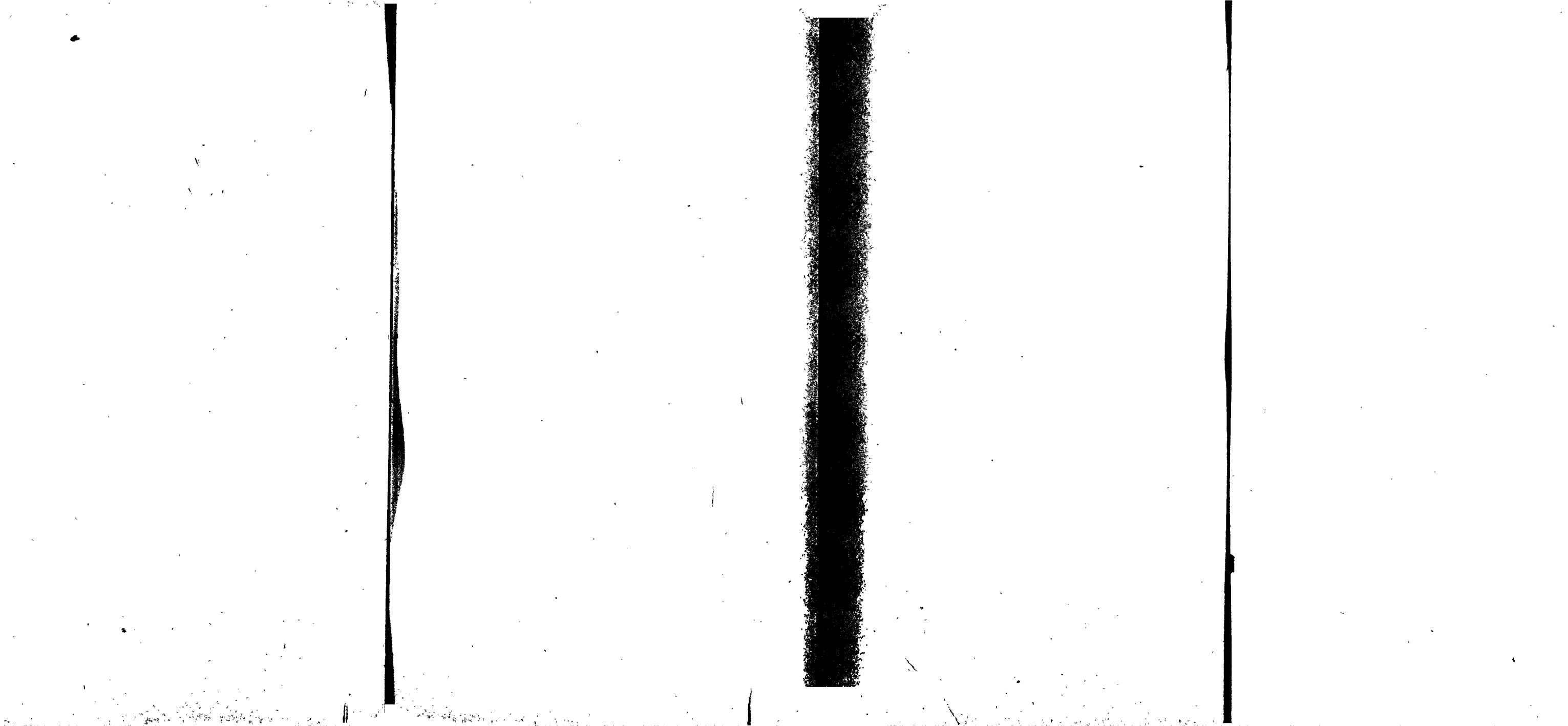
¹ "Address at the International Congress of Orientalists." "Selected Essays," London, 1881, vol. ii, p. 27.

² "Journal of Ethnological Society." New Series, vol. ii, p. 96.

³ "Ueber die Weddas von Ceylon. Acad. Berilonensis." "Classic Physica," 1881-82, p. 101.

⁴ "People of India," Watson and Kay, vol. vii, No. 405.

	OXFORD COLLECTION.									PROF. VIRCHOW.			ROYAL COLLEGE OF SURGEONS OF ENGLAND.																COLLECTION OF DR. B. DAVIS.										
Number of Skull in Catalogue..	736	737	738	739	740	741	742	743	836E	1	4	5	675	676	677	678	679	680	681	682	680A	680B	680C	680D	680E	680F	681A	3-313	3-400	4-471	5-742	6-801	7-802	8-803	9-804	10-805	11-806	12-1213	
Age ..	Ad.	Ad.	Aged	Ad.	Ad. ?	Ad. 19	Ad.	Aged.	26	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	p	40	Aged	16	p	p	45	45	18	15	Aged	20	70
Sex ..	♂	♀	♂	♂	♂ ?	♂	♂	♀ ?	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♀	♀	♀	♀	♂	♀	♀	♀	♂	♀	♀
Cubic Capacity ..	1,430	1,390	1,350	1,350	1,330	1,420	1,205	—	1,265	1,250	1,025	1,360	1,140	1,225	1,235	1,250	960	1,225	1,260	1,420	1,270	1,425	1,220	1,140	1,320	—	1,275	—	—	—	1,392	1,113	1,292	1,273	1,611	1,173	1,442		
Glabello-occipital length.	186	180	186	187	176	182	172	160	179	177	165	185	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	174	185	169	—	180	157	167	188	193	174	169	
Ophryo-occipital ..	187	180	186	187	177	183	171	156	179	—	—	—	165	158	173	176	166	173	176	189	174	184	173	173	167	191	—	—	—	—	157	167	188	193	174	169			
Basi-bregmatic height ..	134	136	132	134	136	132	128	—	130	—	—	—	129	127	132	129	118	136	133	132	133	131	129	129	135	132	143	132	139	129	—	132	132	134	127	142	127	139	
Vertical Index ..	72.0	75.5	71.0	71.0	77.3	72.5	74.4	—	72.6	72.9	73.3	74.1	78.1	80.4	76.3	73.3	71.1	78.6	75.6	69.8	76.4	71.2	74.6	78.0	79.0	74.9	75.0	75.0	75.0	—	73.0	83.0	80.0	67.0	73.0	73.0	82.0		
Minimum frontal diameter ..	88	87	90	90	89	84	88	—	87	95	91	93	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Stephanic diameter ..	106	102	106	106	108	94	104	—	101	—	—	—	106	104	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	
Asterionic ..	100	100	102	102	104	102	96	100	102	—	—	—	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	102	
Greatest breadth ..	128p	122 ps	120 s	120 s	134 p	132 p	126 p	124 s	126	125.5 ps.	133	135	125	131	127	122	116	122	127	126	122	124	121	121	137	134	127 p	127 p	122 t	—	124 p	119 p	132 p	132 p	132 p	117 p	129 p		
Cephalic Index ..	68.8	67.5	64.5	64.5	76.1	72.5	73.3	77.5	70.4	70.9	80.6	73.0	75.8	82.9	73.4	69.3	69.9	70.5	72.2	66.7	70.1	67.4	70.0	69.9	82.0	70.2	72.0	68.0	71.0	—	69.0	75.0	78.0	70.0	68.0	68.0	76.0		
Horizontal circumference ..	510	500	510	500	500	504	479	—	488	485	465	508	468	460	478	482	448	478	485	512	478	500	490	478	473	485	525	500	503	477	488	498	452	449	503	530	474	488	
Frontal longitudinal arc ..	138	132	135	135	141	133	130	117	130	120	115	134	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	361	376	356	366	—	—	347	356	406	361	366	
Parietal ..	131	125	135	135	132	133	123	110	126	115	108	140	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Occipital ..	124	114	110	110	108	112	106	105	114	110	109	114	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Total ..	393	371	380	380	381	378	359	332	370	345	332	388	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Vertical transverse arc ..	300	288	288	288	305	295	278	284	288	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Length of foramen magnum ..	35	36	37	37	34	35	35	35	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Basi-nasal length ..	99	100	98	98	94	97	96	—	93	92	91	90	93	86	99	92	85	98	102	—	99	92	100	94	104	—	—	—	—	—	—	—	—	—	—	—	—		
Basi-alveolar length ..	96	94	84	84	89	86	88	—	89	86	—	—	87	80	—	—	—	95	99	—	93	88	93	93	94	104	—	—	—	—	—	—	—	—	—	—	—		
Gnathic Index ..	97	94	—	—	94.7	88.7	91.7	—	95.7	—	—	—	93.5	93.0	—	—	96.5	96.9	97.1	—	93.9	95.7	96.9	93.0	—	—	—	—	—	—	—	—	—	—	—	—	—		
Interzygomatic breadth ..	126	118	124	124	122	120	110	—	113	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	129	—	—	—	—	122	119	119	114	127	109	119	
Intermalar ..	106	103	110	110	100	103	98	—	96	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Ophryo-alveolar length ..	80	82	72	72	73	74	74	—	72	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Naso-alveolar ..	68	68	54	54	57	56	54	—	54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
Facial Index..	63.4	69.4	58	58	59.9	61.6	67.2	—	63.7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nasal height ..	48	50	44	44	43	43	44	—	42	48	—	—	43	41	45	46	39	50	48	—	43	43	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nasal width ..	23	21	27	27	25	21	23	—	22	24	—	—	20	23	21	25	22	27	24	—	22	22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Nasal Index ..	47.9	42.0	61.4	61.4	58.1	48.8	52.3	—	52.4	50.0	—	—	46.5	56.1	46.7	54.3	57.8	54.0	50.0	—	51.2	51.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Orbital width ..	35	37	39	39	35	38	35	—	36	39	—	—	38	37	38	36	35	38	36	—	37	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Orbital height ..	29	32	33	33	31	31	29	—	31	33	—	—	33	33	30	33	31	31	29	—	33	34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Orbital Index ..	82.9	86.5	94.6	94.6	88.6	81.6	82.9	—	86.1	84.6	—	—	86.8	89.2	78.9	91.7	88.6	81.6	80.6	—	89.2	97.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Palato-maxillary length ..	56	56	45	45	48	46	48	—	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Palato-maxillary breadth ..	62	58	46	46	61	51	55	—	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Palato-maxillary Index ..	110.4	103.5	102.2	102.2	127.0	110.8	114.5	—	110.0	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Lower Jaw:—																																							
Symphesial height..	30	—	—	—	—	—	—	—	28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Coronoid ..	53	—	—	—	—	—	—	—	54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Condylod ..	41	—	—	—	—	—	—	—	42	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Gonio-symphesial length ..	80	—	—	—	—	—	—	—	76	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Inter-gonial width..	88	—	—	—	—	—	—	—	79	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
Breadth of ascending ramus ..	30	—	—	—	—	—	—	—	29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	



In the entire series the height exceeds slightly the greatest width, except in one instance. They are markedly orthognathous, mesoseme, and mesuranic. The nasal aperture has a mean index which is mesorhine, but there is a marked tendency in several instances to platyrrhiny.

Subjoined are the averages of the males and females respectively.

MALE VEDDAHS.

Cranial capacity, average of	19 = 1,321	cc. Microcephalic.
Vertical index, "	21 = 74.3	" Metriocephalic.
Cephalic "	21 = 70.9	" Dolichocephalic.
Gnathic "	12 = 94.7	" Orthognathous.
Nasal "	14 = 52.7	" Mesorhine.
Orbital "	14 = 86.8	" Mesoseme.
Palatal "	6 = 113.0	" Mesuranic.

FEMALE VEDDAHS.

Cranial capacity, average of	11 = 1,229	cc. Microcephalic.
Vertical index, "	14 = 75.7	" Metriocephalic.
Cephalic "	15 = 73.2	" Dolichocephalic.
Gnathic "	5 = 93.6	" Orthognathous.
Nasal "	6 = 51.0	" Mesorhine.
Orbital "	6 = 86.8	" Mesoseme.
Palatal "	2 = 109.0	" Dolichuranic.

The so-called aborigines of Southern India and the hill tribes so the Neilgherries, a people whose claim to be considered aborigines is disputed by Crawford,¹ in many respects resemble the Veddahs. Dr. Mouat² thus describes the skulls of the Southern tribes of India:—"Small in all dimensions, elegant, long oval dolichocephalic, tolerably orthognathous and European looking, their most striking character being their decided smallness and diminutiveness."

Callamand³, in his description of the skulls of twenty-one Maravars, refers to their peculiarities in the following words:—"Sutures simple; the greatest width is usually at the parietal bosses. Norma occipitalis pentagonal. The temporal ridges encroach on vertex; in one case 78 mm. is the distance that separates the two. Spheno-parietal suture 10-20 mm. in length. Superciliary arches slight, and glabella poorly developed. Orbits generally small. The line between nasal aperture and alveolar margin is well defined, not *en gouttière*. Marked absence of wisdom teeth. Mastoids small, occipital condyles small."

¹ "Transactions Ethnological Society," vol. vi, p. 59.

² "Skulls of Hill Tribes of India." "Transactions Ethnological Society," vol. vi, p. 43.

³ "Revue d'Anthropologie," vol. vii, p. 607. "Le Crâne des Noirs dans l'Inde." Callamand.

The above description might apply with equal truth to the Veddah skulls examined, with the exception of the reference to alveolar prognathism and the apparent absence of wisdom teeth. The skulls examined by Callamand were, however, phœnozygous; but in explanation of this he states that this was not due to eurygnathism, but to an unusual depth of the fossæ in the region of the pterion.

A comparison of the different measurements and indices brings out many points of correspondence.

	Maravars. 21	Veddahs.		
		Males.	Females.	Total.
Cranial capacity	1,281	20 = 1336	12 = 1207	32 = 1288
Vertical Index	75.2	21 = 74.8	14 = 75.7	35 = 74.8
Cephalic "	74.5	21 = 70.9	15 = 73.2	36 = 71.8
Gnathic "	—	12 = 94.7	5 = 93.6	17 = 94.4
Nasal "	53.0	14 = 52.7	6 = 51.0	20 = 52.2
Orbital "	83.0	14 = 86.8	6 = 86.8	20 = 86.8

From these data there appears little doubt that if the Veddahs be not of the same stock as the so-called aborigines of Southern India, they at least present very strong points of resemblance both as regards stature, proportions of limbs, cranial capacity, and form of skull. Numerous observers have drawn attention to similarities of hair and colour between these races, so that, on the whole, if physical features alone be taken into account, their affinities with the hill tribes of the Nilgherries and the natives of the Coromandel Coast, and the country near Cape Comorin, are fairly well proven.

DISCUSSION.

The CHAIRMAN having made some observations on the paper,

Mr. BOUVIER-PUSEY remarked, in connection with the conjecture that the Veddahs may be classed with some aboriginal Negrito race, that he remembered a statement either in Turnour's "Mahawarero," or else in a legend given in the notes, that the first Aryan Prince in Ceylon married a Jakkho woman (lit., "demon woman," meaning probably an aboriginal), and that there were two children of this marriage, from whom the Veddahs descended.

Dr. SUMNERHAYES said that he had listened with great pleasure to Mr. Thomson's description of this primitive people. The anatomical details were most interesting to the anthropological student, and all pointed, in his opinion, to the fact that we have here

a specimen of aboriginal humanity, uncorrupted and unadulterated, but at the same time of a very early and therefore a low type of development. He was unable to see any marks or traces of fusion with any other of the more modern and more evolved divisions of mankind, and certainly not with either the so-called Aryan or the Turanian race. Still less did he believe there was any immixture of Negrito or Papuan blood in these curious people. He objected altogether to the introduction of linguistic considerations into arguments bearing upon the ethnological position of any of these primitive types of humanity; nor was it justifiable in these days to talk of Caucasians, which he regarded as an absolutely exploded term in science. Max Müller's notions about Aryan and Turanians were also quite antiquated. We have, however, in the Veddahs probably one of those "*ground races*" which Dr. Bertin has described in "North West Asia," and similar in many respects, and especially in *primitiveness* of type, as distinguished from *degradation*, to the *Mincopies* of Andaman, to the *Karens* and *Kachyens* of Burmah and Malaysia, to some of the hill tribes of Southern India, and to the *Dayaks* of Borneo, all of which belong to older and more primitive strata of humanity than any of the existing white, yellow, or negro populations.

Mr. G. BERTIN said that he had not the advantage of having examined personally the Veddahs, but if the accounts of travellers are to be trusted, they appear to have very primitive habits and customs; this, however, may be due to their isolation. From the evidence brought forward by Mr. Thomson, the Veddahs do not appear to belong to this primitive race, which is found everywhere as the first stratum of humanity, and called provisionally by the speaker the *ground race*. The Veddahs are Aryan by language and may be Caucasian by race; their present low state of civilization may be due to some adverse circumstance unknown to us, which led them to fall back into barbarism, in which they remained through their isolation. The ground-race type is marked by a small round head and a decided prognathism, which is not the Veddahs' characteristics. This race may be the result of crossing, as suggested by the Chairman.

Mr. THOMSON, in reply, stated that in drawing attention to the marked resemblances in the characters of the Veddah skulls to those of the Maravars described by Callamand, and of the Southern Hill Tribes mentioned by Dr. Mouat, he was not prepared to discuss the larger question as to whether these so-called aborigines of India were Dravidians or Caucasians.

The following Paper was read by the Secretary, and illustrated by the exhibition of the bull-roarers which produce the "Voice of Oro":—

NOTES on the YORUBA COUNTRY.

By MRS. R. BRAITHWAITE BATTY.

(Abstract.)

AFTER a detailed description of the Ondo tribe, and of Odo Ondo, their capital, attention is directed to the worship of Oro.

In the Yoruba country, Oro, the God of Vengeance, has its headquarters. Oro is a deity peculiar to the Egba tribe of the Yoruba race, but also adopted by other tribes. The name signifies "torment."

Oro is a god of terror and of vengeance. Some say that he is their deceased father come from the unseen world to confer a blessing on them yearly, and to remove inconvenient individuals from the land. It is the general belief of the female population of the whole Yoruba country that he is a deity who occasionally makes his appearance in the form of a human being wearing a pair of trousers extending down to the feet, and covering them, like the god Egun, with this exception, that the Oro wears a wooden mask, but the Egun veils his face.

Oro has his sacred groves, full of the relics of men who have fallen victims to his vengeance for their offences. Were a female, in the presence of a man, to place herself within the entrance of one of these Oro groves, it would be equivalent to a deliberate act of suicide on her part. So also, were a man to turn out a female member of his household during the dark hours of the night, a thing not unknown, or to persuade a woman—in ignorance of the nature of the place—to enter one of these groves, it would be almost equal to an act of murder. Oro generally puts in an appearance somewhere or another almost every night, and it is so uncertain when and where he may show himself that it is wise for every female who values her life to keep at home between the hours of 7 p.m. and 5 a.m., as any woman getting a sight of, or finding out the secret of, Oro, must certainly be given over to him. If a man were to reveal a secret to any woman, and it became known to the authorities, both the man and woman would be given up and put to death without mercy; no tribe could alter the sentence. Oro asserts his judgment in a manner not to be questioned by anyone. In the case of twin children born in a family, or a child who re

am is removed by

the Oro—in reality, destroyed by suffocation, and the corpse is taken to the sacred grove.

If a person, or persons, be said to be given to, or taken by, Oro, it is sufficient to stop further inquiries respecting them. The only certain thing is that they will never be seen again in this life. It is understood that the day a woman sees, or professes to know, what Oro is, her existence on earth ceases, and she is to accompany the god to the invisible world. It is the general belief that Oro swallows his victims alive, but in reality offenders are dragged alive by the feet, hands and feet being bound, till death puts an end to the torture. For minor offences the criminal is sold into hopeless slavery, never more to be allowed to return. The Oro sacred grove is not accessible to any but the devotees of the god. A woman might know all about the secrets in connection with it, and yet be safe, so long as she pretends ignorance, and does not divulge the secrets.

The Oro may make his appearance after giving due notice, so that the female population may keep themselves within doors, or he may appear suddenly in case of emergency—his voice being the signal for the confinement of the women. Those who may happen to be out of doors, the moment the voice of Oro is heard, veil their faces, and are escorted by the men to their homes. Women coming from a journey, or strangers, have to remain behind the walls of the town as long as the Oro is out.

There can be no doubt when Oro is near at hand, for his "voice" is often most unearthly, and being generally heard in the dark hours of the night, it appears all the more so. But in addition to the nightly visits of the deity, there are what are called "Oro days," extending from one to three or more in succession. For instance, when a general meeting at the King's Palace is to be called—or elsewhere—the bellman, or towncrier, goes round giving notice that on such and such a day "Oro will be out," and that a general meeting of men will be held at such and such a place.

Sometimes, when extending over several days in succession, a dispensation is given for about an hour or so in the evening, to allow of women taking food into the market or streets for sale, intimation of which is given by the firing of guns. All the Yoruba tribes do not hold this custom of Oro so strictly as the Egbas of Abbeokuta, and in their territory it is not strictly enforced, except in the towns. In Ibadan it has been done away with, and the Oro stick is played with only as a remembrance of past days, which is the case also within the vicinity of Lagos. Still even under these circumstances the men do not like to part with the Oro stick, or to allow it to come into the possession of a stranger, as it is the policy of the people to conceal to the

utmost of their power the instrument producing the voice of Oro, in order to make the uninitiated believe that it is actually the voice of some supernatural being.

The supposed "voice of Oro" proceeds from a small piece of wood, actually worshipped as a god—narrow and tapering at each end—somewhat thinner at the edges than in the middle, about one inch wide, and measuring from nearly a foot to three feet in length.



THE INSTRUMENTS FOR PRODUCING THE "VOICE OF ORO."

(Scale one-sixth linear.)

The stick is attached to a string, which is fastened to one end of a bamboo or pliable rod, of from six to eight feet in length, the string being about double the length of the handle, which is used something after the fashion of a whip. The motion is horizontal, rotary, and oscillatory.

According to the velocity and the size of the stick, a sound is produced—sometimes a shrill high tone, sometimes a low, sometimes a rattle. The largest stick requires a man of gigantic strength to twist it. Taking the handle in both hands, he twirls it rapidly, the stick horizontally at his head, beginning

slowly, and gradually increasing the rate of speed till the Oro stick goes round as fast as he can make it, the sound made becoming shriller as the rate of the circular motion increases.

On the day of the appearance of Oro, the servants of Oro are posted at various distances from the sacred grove along the streets through which the god is to pass, and at various places in the town. Their business is to cause the "voice of Oro" to be heard by twirling the Oro stick at intervals as long as their strength will permit; their business being also to see that every female is confined within doors.

DISCUSSION.

Dr. E. B. TYLOR sent for exhibition several bull-roarers, accompanied by the following note:—

By the addition of Mrs. Batty's paper and specimens, the series of bull-roarers used in the ceremony and sport of various peoples now approaches all the completeness it is likely to reach. I send for exhibition with Mrs. Batty's Yoruba "Voice of Oro," two Australian, one Zulu, and one Scotch. It may be possible to add to the series at some time a Maori bull-roarer, of which the British Museum has a fine specimen, and the South African variety described by Theal, and mentioned in the "Journal of the Anthropological Institute." The only one which may have irretrievably perished is the Greek rhombos sounded in the Mysteries. The series brings remarkably into view the point that in ancient Greece, modern Australia, North America, and Africa, the instrument is one of sacred purpose. Only in Europe and the United States has it degenerated into a boy's plaything.

His Excellency GOVERNOR MOLONEY, C.M.G., has since sent the following note on Oro and the Oro-stick:—

In Yoruba (the Egba's resort pre-eminently to this practice), applied generally to the area over which the Yoruba language, or some dialect thereof is spoken, the Oro represents the active embodiment of the civil power, the local police, the mysterious head or idol of the Civil Government; it is interpreted as the executive of the State where it is practised, deified. The instrument by which it is proclaimed is the Oro stick, composed of a pliable stick resembling the handle of a whip, from the thin end of which is suspended by means of a string, four or five feet long, made from some native fibre, a thin flat tongue-shaped piece of wood about five inches long and two broad.

By means of the handle this tongue is given a rapid circular motion in the air, and then causes a weird noise not unlike that of wind playing down our chimneys at home during a storm; when such noise is made, Oro is said to be out and active.

The greatest reverence is extended by the natives to this instru-

ment from fear doubtless of consequences. I have seen even so-called Christians awe-struck in its silent presence.

The law of the Egbes is regards Oro in connection with the close
 bondman of women in their houses is unalterable. Any woman,
 latter her position or influence, who might be taken in the
 is when Oro is out, would forfeit her life.

the supreme authority of a state or town seems to be invested in this mysterious and undefined power. When any public business is to be considered a meeting is convened in the name of Oro. Sentences on criminals are pronounced under the same sanction. Oro, when out, is often supposed to perambulate a town for hours or even days together.

There are among the musical instruments of Yoruba the *Ogbonis* (native fiddlers) and *Oro* (native police) drums, called respectively *Ago-ogbon* and *Ile-oro*; these drums, played in sets of four, resemble each other; the largest *Oro* drum is called *Obetè*, the others *Asipè*. They are used with the *Oro* stick to proclaim meetings of the *Oro* Society (composed chiefly of *Ogbonis* or *Oshogbos* musicians) convened for the trial of public offenders, for the consideration of state questions, &c.

The following Paper was read by the Secretary :—

On SALUTATIONS.

By H. LING ROTH.

CONTENTS.

Introduction.—Tyler's Gesture Language. The Encyclopædia Britannica.
Classification.

I.—Handshaking the symbol of friendship. Allied customs. Joining noses. Rubbing hand on nose and mouth. Savage wonder at wetting faces with lips. Pubescence of noses due to nose salutation. Beechey's description. Hands drawn over faces. Smiling. Pleasure in rubbing noses. Nose rubbed on hand. Squashing nostrils and grunting. Smelling hands. Kissing. Chucking under chin. Handshaking. Presents demanded. Thumb pressing. Finger exercises. Snapping nose. Cracking fingers. Bowing and placing hands on breast and head. Stereotyped phrases. Cracking fingers. Apparent repulsion. Women do not greet. Cracking middle finger joints. Dash of grass in hand. Proper handshaking—left hand in apron. Embreasing. Spouses do not embrace. No kissing in Japan. Kissing in both America and Restricted area of kissing. Kissing derived from mutual licking as an abridgment. Respinuous licking lands. Caucasian Biluchi and Caucasians also spit.

For a further list see Chapter preceding African gesticulations.
American and European hands. Slapping cheeks. Clapping hands. African waving good bye. The hand. Bowing. Embrace.

ing. Genuflections. Clapping hands. Extension of arms. Stroking body. Wajiji boatmen's salutations. Raised closed hands. Malay custom similar. Hands raised to lips and forehead. Easter Island greeting. Boomerang with mud. Drumming ribs with elbows. Touching ground with cheeks. Clapping hands. Chiefs make feint to rub with sand. Mud rubbed on left side first then on right. Stereotyped words of greeting. Clapping hands and rubbing mud on breasts. Kneeling before superior. Handshaking and embracing. Modern Greek salutation. Greeting a priest. Turkish greeting. Todas "masonic sign." Seizing the foot. Distinctions between salutations of men and women. Siamese squatting. Japanese politeness. Affirmation by nodding the head. New Zealand assent. Yorkshire form of acquiescence.

- III.—Uncovering the upper and lower part of the body. Low bow. Doffing headgear. Uncovering the feet. Chancellor Cromwell foretold his fall.
- IV.—Expression of goodwill by holding up articles. Interchange of gifts. Taxes. Branches as tokens of friendship. Waving of paddles. A green branch. Sprinkling water on head. Use of a dog. A branch. A stick with feathers attached. The South Sea peace offering. Snuff offerings. Curious offer of a pig. Exchange of presents by Andamanese.
- V.—Joy weeping among Andamanese. Laceration as a sign of joy at return of friends. New Zealand custom: Joy-weeping practically mourning. A contrary case with an English girl.
- VI.—The expression of displeasure. The Malay kiss and Roman *fasces*. The deaf-mute's gesture.
- VII.—Various unclassified customs. Spitting a salutation in Africa. Chewing sugar-cane and blowing thereon. Blowing on hands. Spread of handshaking custom. Spread of European and Mahomedan words of greeting. Tribes without salutations. A tribe known by its salutation-word.

P.S.—Mr. Normand's painting, the "Death of the First Born," and kissing and embracing in Egypt."

THE various methods of salutation in use among savages have been treated by Mr. E. B. Tylor—largely in his chapters on *Gesture Language* ("Early History of Mankind"), and perhaps more fully in the article entitled "Salutations" in the ninth edition of the "Encyclopædia Britannica." Since the above papers were written, further accounts of the customs of saluting have been collected, and these being deemed of sufficient interest, are now laid before the Fellows of the Anthropological Institute.

As in describing other customs, so here in describing those now before us, we find very often races far apart making use of like forms. Such similarity may be accounted for in several ways: by transmission through travellers, by more or less close relationship, or by independent origin. But with this aspect of the customs we have in this paper nothing to do. In describing these customs the groupings, with slight modifications, as arranged by Mr. E. B. Tylor, will be adhered to as much as possible. It is yet not always clear as to which a group or custom may belong. This will be seen in the course of the paper.

I.

The first group embraces in principle those customs which are the act of parties joining in compact, peace, or friendship. Most important of these will naturally be handshaking. At the same time it will perhaps not be inadmissible to introduce into this group all customs where the act is expressed by joining of noses, kissing (joining of lips), or embracing. Sniffing, nuzzling, or inhaling will thus naturally fall into the group, for these acts cannot be performed with any ease without bodily contact.

In the Friendly Islands, "They salute strangers much after the manner of the New Zealanders by joining noses, adding, however, the additional ceremony of taking the hand of the person to whom they are paying civilities, and rubbing it with a degree of force upon their nose and mouth" (Cook, "Third Voy.," Bk. i. ch. iii). At Otaheite, Captain Wilson remarks, "Their mode of salutation is very different from ours. They touch noses, and express affection by wetting one another's lips with our lips" ("Mission Voyage," Lond., 1799, p. 363). In the Sandwich Islands, Cook ("Third Voy.," Bk. V, chapter iii)

describes their joining noses as a token of friendship, and not touching noses, and Captain King (*ibid.*, ch. vii), thinks the fulness of the nostrils of the native may be the effect of rubbing noses, and saluting by pressing the ends of their noses together.

When we come to consider the way in which this salutation is carried out, Captain King's suggestion does not appear so reasonable. Captain Beechey thus describes the ceremony:—

"The manner of effecting this friendly compact is worthy of description. The lips are drawn inward between the teeth, the nostrils are distended, and the lungs are widely inflated; with operation the face is pushed forward, the noses brought in close contact, and the ceremony concludes with a hearty rub, and a hearty exclamation or grunt; and in proportion to the ardour of feeling, the more ardent and disagreeable is the salutation" ("Narrative of a Voyage to the Pacific," Lond., 1831, i. p. 3).

This same authority (*ibid.*, p. 242), states that among the Esquimaux, "Their manner of salutation was by joining their noses against ours, and drawing the palms of their hands over our faces." Ellis ("Polynesian Researches," 1831, p. 337), and Turner ("Samoa A Hundred Years Ago," Lond., 1884, p. 179), also refer to the touching of noses, and the latter to smelling as well. There must apparently be some real pleasure in this method of salutation if judged in the following account. Wilkes, on landing at Manono in the Navigator Group, says, "Bar. 30.5. Wey," Lond., 1840,

p. 110), "I then introduced Teava and his wife, when he seized them with delight, saluted their noses with a long and hearty rub, and exclaimed, *lelei, lelei, lava*, 'good, very good, I am happy now.'" On another occasion, he says (p. 109), that as the chief esteemed the missionary greater than himself, he only rubbed his nose on his (Williams') hand.

In Astrolabe Bay (New Guinea), "The usual kind of friendship was squeezing the nostrils with the forefinger and thumb of the left hand, and pointing to navel with index finger of right, generally making one or two audible grunts during intervals, and sometimes a word was used like *vācūs*, but this was rare" (Comrie, "Jour. Anth. Inst.," Vol. vi, 1877, p. 108).

From nose rubbing the transition to smelling is not great. St. Johnston ("Camping among Cannibals," Lond., 1883, p. 302), in the interior of Fiji, states, "When I left the house I slept in, those people who were inside said to me, '*Saloka*,' meaning 'you go,' to which I made the proper reply, 'I go, you stay.' One or two of them then took my hand and smelt it, making rather a noise about it, which is here a very courteous and respectful method of salutation and farewell, but a little surprising just at first."

Among the Khyoungtha, Lewin tells us:—"Their mode of kissing is strange, instead of pressing lip to lip they apply the mouth and nose to the cheek, and give a strong inhalation. In their language they do not say, 'Give me a kiss,' but they say, 'Smell me'" ("Hill Tribes of South East India," p. 118).

And on the Gambia, Fr. Moore related last century that usually the people's "manner of salutation is shaking hands, but generally when the men salute the women, they, instead of shaking their hands, put it up to their noses, and smell twice to the back of it" ("Travels in Inland Parts of Africa," Lond., 1738, p. 121).

A unique custom is found in New Guinea, according to W. G. Lawes ("Jour. Anth. Inst.," Vol. viii, 1879, p. 376): "The mode of salutation with the Koiari is peculiar. When I arrived at one of their villages, a chief whom I knew put one of his arms round my neck, and began fumbling about at my neck. I wondered what he wanted, but presently found that he was feeling for my chin. They salute their friends by chucking them under the chin."

Handshaking is common in Central Asia (Vamberg, "Travels," Lond., 1864, pp. 85, 118, 128, and 129). Captain Speke says handshaking is the peculiar custom of the men of Karagué ("Jour. Disc. Nile," Lond., 1863, p. 203). Among the Masai the handshaking, unfortunately for the traveller, leads to other business. Thomson thus describes it ("Through Masai Land,"

390) "For now the Masai are beginning to issue forth in the warming of the air. On all sides we are greeted with *Shere! Shere!* (friend). In my case I am addressed as *ma* (medicine man), to which I reply with an inarticulate signifying I am all attention. *Gueak* (your hand) is asked for. The shaking being duly honoured, a further in the ceremonious greeting is made by the salutation, *ai* (how are you), to which I answer, *Ebas* (I am well). Then as a corollary to the ceremony, the visitor follows it up with the demand *Jegen? maketan!* (Do you wear a string of beads), and without a demur a string of beads is handed to the stalwart beggar."

This sort of thing is very different from the custom in Wazan, where Watson ("A Visit to Wazan," Lond., 1880, p. 177) refers to his host's shaking hands with him "in the beautiful Moslem fashion." Among the Wanika, according to Krapf ("Expl. Journ.," Lond., 1857, p. 138), in shaking hands the chief grasped my hand and pressed his thumb against mine, as custom."

connection with handshaking we find other peculiar finger sees. Thus on the Niger, Blaikie ("Nar. Expl. Voy.," Lond., p. 144) says at Abo "the ceremony of handshaking is performed by the two parties taking loose hold of the fingers of each other's right hands and then slipping them, making at the same time a snapping noise with the aid of the thumb."

Under "Journal," Lond., 1832, Vol. i, p. 10) complains of being obliged to "shake hands, and crack fingers, and bend our heads and bow our heads, and place our hands with solemnity on heads and breasts." And in the following account of unfurth, the cracking of fingers is also marked: "Mutual greetings among the Niam-Niam may be said to be almost typed in phrase. Anyone meeting another on the way be sure to say *muissette*; but if they were indoors they salute each other by saying *mookenote*, or *mookenaw*."

expression for farewell is *minahpatiroh*; and when in suspicious circumstances they wish to give assurance of friendly intention, they make use of the expression *budya, mu, muu* (friend, good friend, come hither). They also place their right hands on meeting, and join them in such a way that the two middle fingers crack again; and while they are greeting each other they wave their hands with a strange movement, which to our Western ideas looks like a gesture of insult. The women, ever retiring in their habits, are not accustomed to be greeted on the road by any with whom they are previously intimate ("Heart of Africa," 3rd ed., i, p. 292)." Among the Mombuto, says the same author (ibid., Vol. ii,

p. 41): "The universal form of salutation consists in joining the right hands, and saying '*Gassiggy*,' at the same time cracking the joints of the middle fingers."

Rebman tells us ("Krapp's Travels," Lond., 1867, p. 238), that during his first journey to Jagga: "When I was summoned to Masaki, my guide put grass into my hands, after the custom of the country, that I might so greet the King, who had likewise some in his. In conformity with their usage I gave my hand to him and to his ministers." Forty years later Thomson met the same custom among the Masais: "They (Masai women) entered with a mincing, half-dancing step, and peculiar motion of the body, chanting a salutation all the time. Each one carried a bunch of grass in the hand, in token of peace and good-will;" and later, "As we pass them in succession we pluck some grass and gravely shake hands. Addressing them as *El-Moran* (Masai warriors), we wait till an inarticulate sound intimates they have ears. Then we say '*Subai*,' to which they reply, '*Ebai*,' and our introduction is over (*op. cit.*, pp. 189 and 167)."

Handshaking appears to have been customary amongst the Trojans. Æneas on meeting his father, Anchises, in the infernal region, says, "Permit me, father, to join my right hand (with thine) (*"Ænid," Book vi.*)". We have seen above that handshaking was customary on the Gambia, and Fr. Moore (*op. cit.*, p. 121) adds, "And nothing can affront them so much as to salute them with your left hand."

Embracing is common in Central Asia (Vambery). Ellis (*op. cit.*, iv, p. 282) relates a case at Hawai; and in Australia it is most common: "Brothers and friends do not at first notice each other, but gradually draw near, and when alongside throw an arm round each other's necks, and stroll about, saying kind things to each other." But with husbands and wives, even when they love each other, they do not greet on meeting after a long separation (Bonney, "Aborigines of Darling River," "Journ. Anth. Inst.," xiii pp. 129 and 130). The following, taken from Curr's "The Australian Race" (Melbourne, 1886), show how widely distributed the custom of embracing is on the Southern Continent. The Ballardong tribe: "On meeting, after an absence, friends will kiss, shake hands, and sometimes cry over one another (I, p. 343);" the Wonkomarra tribe: "The members of the tribe salute each other on meeting, after an absence, by throwing their hands up to their heads (II, p. 38);" at Bourke, Darling River: "Two men, not necessarily related, but friendly, when meeting would salute by standing side by side, and casting each of them his nearer arm round his fellow's neck, with the greeting *Kalnnbeeja*, or *bahlooja* (father or younger

according to the age of the addressed (II, p. 205);" on the River, Queensland: ". . . friends meeting after separation embrace. On such occasions they seem much to rub faces, and caress one another very fondly (III, p.

embracing we come to kissing": Although the Japanese custom, and particularly so regarding their children, never kiss. There is no such word in the Japanese lexicon. (See John, "Wild Coasts of Nipon," Edin. 1880, p.

In Central Asia, according to Vambéry, it seems in "Tanner" ("John Tanner's Narrative," Lond., 1830, p.) relates that once during his captivity among North American Indians his adopted mother hugged and kissed him when she was pleased he had killed a bear. On one extraordinary occasion among the Dakota Indians, when Rain-in-the-Face was captured, Mrs. Tupper relates: "The officers present could scarcely believe their eyes when they saw his brother approach to kiss him. Only once before, among all the tribes they had been with, had they seen such an occurrence. The Indian kiss is not demonstrative; the lips are laid softly on the cheek, and no sound is heard of motion made. It was only this grave one that induced the chief to show such feeling" ("Boots and Saddles," New York, 1885, p. 213). When Livingstone returned from Malakolo, after his arduous journey to the West Coast, he was kissed by the women:—"Others rushed forward and kissed the hands and cheeks of the different persons of their acquaintance among us" ("Missionary Travels," Lond., 1857, p. 492)."

However natural kissing appears to Europeans it has been pointed out by Mr. E. B. Tylor ("Encycl. Brit.," 9th ed.) that the custom of kissing has a very restricted area. In spite of this only a short time ago there was some very serious correspondence in the *Spectator* newspaper, which gravely proved to the satisfaction of the writer that kissing is derived from the mutual licking of the lower animals! Perhaps the writer had in his mind the unpleasant custom found among the Esquimaux, as described by Captain Beechey (*op. cit.*, p. 265): "They were also very particular that everyone of them should salute us, which they did by licking their hands, and drawing them first over their own faces and bodies, and then over ours." But this custom really belongs to another group.

The Eskimos have a very ceremonious form of greeting: "They accost each other with a mutual rubbing of the hands, and only after the health of the individual and the welfare of his family and the welfare of his nation is fully ascertained, do they proceed to the actual kiss, which, when

concluded by one party, must be taken up by the other. In a large assembly, as, for instance, a *darbar*, these inquiries and rejoinders occupied a considerable space of time, and even after these, if during the interview the stranger's eye caught that of an acquaintance, he would join his hand, and demand inquiringly and earnestly, *Koosh?* (Are you well, or happy?) The *Biluchi* embrace a friend by laying his hand alternately on each shoulder, and being, as before described, a portly race, the ceremony was trying in so sultry a climate, for each individual of a party exacted this ceremony. In all this, however, there was, beyond the mere ceremonies which in the East are a regular portion of education, and as indispensable as any other-occupation of life, a great deal of sociable and kindly feeling, and from the most polished to the rudest of the race, formed a marked feature of character (Capt. T. Postans, "Journ. Ethn. Soc.," I, 1848, p. 123)."

The salutations among the *Ainos* are peculiarly ceremonious, and are very much like their form of thanksgiving—at least a comparison between the accounts of a thanksgiving ceremony given by Brandt ("Jour. Anth. Inst.," III, 1874, p. 133), reads much like the following, by Lieut. Holland (*ibid.*, p. 236): "The modes of saluting among the *Ainos* are quite different for men and women. The men rub their hands together, raise them to the forehead, palms up, and then stroke down their beards, one hand after the other; the women draw the first finger of the right hand between the first finger and thumb of the left, then raise both hands to the forehead, palms up, and then rub the upper lip under the nose with the first finger of the right hand. When a man has been travelling and returns home, he and his friend put their heads on each other's shoulder, the elder of the two then puts his hands on the head of the younger, and strokes it down, gradually drawing his hands over the shoulders down the arms and to the tips of the fingers of the younger; until this has been done, neither speak a word. This is rather more familiar a salutation than that of a stranger *Aino*, who is received by the headman of the village: both kneel down, and the stranger, laying his hands on those of the host, they rub them backwards and forwards; after this, they talk, but neither says a word before the ceremony is completed." Another account is given by H. St. John in "Jour. Anth. Inst.," II, 1873, p. 251.

II.

Cowering and crouching Mr. E. B. Tylor describes as a gesture of fear or inability to resist, common to man and to brutes. In

group will naturally fall bowing and its converse, the sign of the arms similar to benediction. It also necessarily has some very self-abasing, to our ideas at least, customs so common in Africa.

The inhabitants of Hainan have a graceful way of greeting a guest, "which is done by extending the arms, placing the open hands with the finger tips touching, or nearly so, and drawing them inwards with an inviting motion. They bid farewell in a similar graceful fashion, extending the open hands with the palms upward and slightly inclined outward, in a movement as if handing one on his way. In giving a present the gesture of greeting is used, signifying their desire to do you a favour, while in receiving a gift the gesture of departure is used in a deprecating way, to express their unworthiness to receive it. I often noticed when people from other villages came, how particular they were to give them the proper greeting, while among those who were more familiar with each other, or met more frequently, the elaborate and graceful form degenerates into a simple quick movement of the hand (C. B. Henry, "Ling-Nam," London, 1886, p. 426)."

According to Cameron ("Across Africa," Lond., 1877, I, pp. 226-7), among the Uvinza, east of Tanganyika: "When two 'grandees' meet, the junior leans forward, bends his knees, and places the palms of his hands on the ground on each side of his feet, whilst the senior claps his hands six or seven times. They then change round, and the junior slaps himself first under the left armpit, and then under the right. But when a 'swell' meets an inferior, the superior only claps his hands, and does not fully return the salutation by following the motions of the one who first salutes. On two commoners meeting they pat their stomachs, then clap hands at each other, and finally shake hands. These greetings are observed to an unlimited extent, and the sound of patting and clapping is almost unceasing." Serpa Pinto found something similar on the West Coast, where the people saluted him "by repeatedly striking their open palms upon their naked breasts ("How I crossed

p. 397)." Blaikie ("Nart. Expl. Voy.," Lond., 1856, and the clapping of hands as a sign of welcome among custom on the Niger, and Thomson ("To the African Lakes," Lond., 1881, I, p. 313) gives us a very lively account of an African morning, where was customary among the Walunga to the west of a. "The ceremonious salutations in the morning are

On every side a continuous clapping of hands goes on, accompanied by a "tata!" which is repeated outside of

his house, he needs must turn to every one singly, and bowing politely, clap hands with the accompanying words. If a relative or some very great friend appears, they at once rush into each other's arms, while if a chief passes, they drop on their knees, bow their head to the ground, clap vigorously, and humbly mutter *Kwitata, Kwitata?* The Esquimaux clap their hands, extend their arms, and stroke their bodies repeatedly, which Beechey found to be the usual demonstrations of friendship among them. (*op. cit.*, p. 252). Thomson also (*op. cit.* II, p. 199) describes the custom of raising the hands as follows: "The greeting interchanged between our Wajiji boatmen and the strangers (also of Wajiji) was most pleasant and touching. They all stood up with hands closed, and held out in the manner of supplication, then with solemn faces they bent slightly to one side, and repeated in a low key the salutation, *Wakhé wakhé?* (How art thou?), finishing off with clapping the hands once or twice. As each one in our boat was thus saluted personally by all those in the other boats simultaneously, it was some time before they had finished.' McNair found a similar custom among the Malays ("Perak and the Malays," Lond., 1882, p. 237): The Malay is ever "ready to greet his fellows in the peculiar manner adopted in the country, where the new comer or visitor approaches his host, or the man he wished to salute, with his hands joined as if in supplication, while the other touches them lightly with his own on either side, and afterwards raises his hands to his lips or forehead (the custom of nose-rubbing has been attributed to the Malays in their greetings, but it has never been seen by the writer)."¹ At Easter Island, Cook saw something similar: "A chief saluted some natives as he came up by stretching out his arms, with both hands clenched, lifting them over his head, opening them wide, and then letting them fall gradually down to his sides" (*Sec. Voy.*, Bk. II, ch. viii). Baker ("Albert Nyanza," Lond., 1866, II, p. 27) was greeted as follows at Shooa: "Each native that was introduced performed the salaam of his country, by seizing both my hands and raising my arms three times to their full stretch above my head."

A nasty custom, and limited to Africa, is that of besmearing oneself with mud. It is thus described by Livingstone ("Mission Trav.," Lond., 1857, p. 276). Among the Barotze, the chief, while speaking, during every two or three seconds of the delivery, "picked up a little sand and rubbed it on the upper parts of his arms and chest. This is a common mode of salutation in Londa, and when they wish to be excessively polite they bring a quantity

¹ Wallace, nevertheless, on leaving Macassar, refers to "nose-rubbing" (the Malay *kiss*), and some tears shed (Malay Archipelago, chap. xxviii).

ashes or pipe clay in a piece of skin, and, taking up handfuls of it on the chest and upper front part of each arm; others in dusting drum their ribs with their elbows, while others still touched the ground with one cheek after the other, and clap their hands. The chiefs go through the manoeuvre of rubbing the sand on the arms, but only make a feint at picking up some. The same traveller records the same custom as obtaining among the Balonda (*ibid*, pp. 286 and 296). Cameron found it on the West Coast of Tanganyika (*op. cit.*, p. 299), and Thomson gives another account of it ("Central African Lakes," II, p. 152): "The Wama have a curious resemblance in many respects to the Monbutto, discovered by Schweinfurth near the Walle. Their mode of salutation is most elaborate. An inferior in saluting a superior takes a piece of dried mud in his right hand; he first rubs his left arm above the elbow and his left side; then throwing the mud into his left hand, he in like manner rubs the right arm and side, all the time muttering away inquiries about their health. In making speeches the speaker always commences with the same salutation, and each time the chief's name is mentioned every one begins rubbing his breast mud." It seems indeed common right across Africa, for a Pinto found it among the Ambuellas: "They commenced vigorously clapping the palms of their hands together, after which, scraping up a little earth, they rubbed it on the breast, and repeated many times, in a rapid way, the words *bamba* and *calunga*, terminating with another clapping of hands, not quite so vigorous as before (*op. cit.*, I, p. 333)." Baikie (*op. cit.*, p. 114) met this custom on the Niger, and these are his words: "The form of salutation, when an inferior presents himself, is by kneeling down, bending the head towards the ground, throwing dust against the forehead and on the head, and repeating some words of greeting, which ceremony, if the comers be of sufficient consequence, is repeated by the other party. But if two friends meet on the road they merely shake hands or embrace each other." The Landers also mention the mud custom (*op. cit.*, I, p. 132).

Mr. Theodore Bent states ("The Cyclades," Lond., 1885, p. 469) at Amorgos: "Our priest on entering his father's house, touched the ground with his fingers, as a token of respect, before embracing him. His sisters, on the contrary, touched the ground with their fingers before kissing the proffered hand of their brother. This mode of greeting a priest is common now only in primitive society in Greece, as is also the old way of greeting by placing the hand on the breast and inclining forward, as you say, *Kalās* before. Sometimes even you may still see the Turkish *shion* carried out by putting the hand first to the lips and then to the forehead."

Among the Todas we have a most peculiar form of greeting, being very like a modification of the salaam of the East. It is performed "by raising the thumb edge of the right hand vertically to the nose and forehead, is a respectful form of address, used in addressing superiors and on approach to sacred places, and other like occasions. When asked by what name they styled that form of salute, they replied . . . 'I say, come! I say, Lord!' When friends meet or pass one another they say *Tya* or *Tcha*, as much as to say, 'Good morning.' The salute called *Adabuddiken*, or, 'I seize the foot,' is performed when people meet who have been apart for some time. Men never bow down to women, nor to other men, but women do so to other women, but not to their husbands, although they do so to father-in-law, mother-in-law, and husband's eldest brother. Now each one of the juniors or inferiors—being a female—approaching each of the superiors or seniors, both men and women in succession, falls at his feet, crouches on the ground before him or her, on which he or she places first the right, then the left foot on her head. Such is the act styled *Adabuddiken*." As this reciprocal ceremony has to be performed by every superior to every inferior, while the superiors among themselves say *Tcha* to every individual, it takes a long time to perform. He says there is no unseemly slavishness about the act, although it is carefully gone through with cheerfulness by the women, and politeness by the men. (W. E. Marshall, "Travels," Lond., 1873, p. 41.)

"In Siam they squat down with their hands crossed, and their heads hanging down with an abashed air" (Neale's "Residence in Siam," Lond., 1852, p. 70). But judging from other evidence in the book, this is probably only done by inferiors to their social superiors and not amongst the people themselves.

Perhaps the most charming of salutations is that of the Japanese: "No people could be kinder, or more polite, amongst themselves, than the Japanese. Two coolies—the lowest class of society—on meeting, never fail to go through the usual custom in the country, of bowing several times, and asking after each other's health, then that of their families, and so on. Little children act towards each other just in the same way, or if an old grey-headed man meet a little girl six years old, the same ceremony is gone through. Two Musumees coming across each other, bow and go through the most engaging and pretty way of saying good morning" (H. St. John, "Wild Coast of Nipon," p. 215).

Among the more civilised peoples affirmation is very commonly expressed by the gesture of nodding the head. But in New Zealand the motion of the head is exactly reversed: "The natives in giving assent to anything, elevate the head and chin

act of nodding acquiescence" (A. S. Thomson, quoted by L. B. Tylor, "Early History," p. 52). Strange as it may seem, custom is not rare at home, and the writer can name four ones in Yorkshire who give an affirmation in the same way as New Zealanders.

III.

The uncovering of particular portions of the body is described by Mr. Tylor as a sign of disarming, defencelessness, or destitution, and it may be somewhat allied to the last above-mentioned group. The uncovering of a portion of the body, apart from the head only, as a mark of respect appears to have been confined to the natives of Otahaite. Cook refers to this uncovering on several occasions. He says, "What is meant by uncovering is the making bare the head and shoulders, or wearing a sort of clothing above the breast" ("Sec. Voy.," Bk. I, p. 1). But on his first voyage he appears to have met with a different sort of uncovering at Otahaite, thus (Bk. I, ch. xiv):—"a mark of respect to superiors, these people uncover their heads and bodies as low as the waist, and as all parts are exposed with equal indifference, the ceremony of uncovering it from the waist downwards, which was performed by the natives, might be nothing more than a different mode of compliment adapted to persons of a different rank." Elsewhere Captain Cook says the Tschukis "were so polite as to take off their caps and make us low bows" ("Third Voy.," Bk. III, ch. ix). In Fiji, St. Johnston (*op. cit.*, p. 304) says some natives doffed their turbans to him, but judging from the incident which preceded this salutation, it is doubtful whether this doffing was a usual custom. In juxtaposition to the method of salutation off the head gear, we have the following in Morocco:—"you make calls you keep your head covered, but uncover" (R. S. Watson, *op. cit.*, p. 159).

Time of the Tudors it appears to have been the custom, when a gentleman lost his bonnet, for all those who saw him to doff theirs. It was the omission on the part of a man to conform to this custom which partly foretold to a well that he was about to fall into disgrace ("Chronicle VIII," quoted in *Athenaeum*, Feb. 19, 1889, p. 268).

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showing that this was the origin of mutual interchange of gifts, which travellers have come at last to look upon as a species of heavy tax.

In the Navigator Group, "the sign of peace to strangers is the displaying of a white flag or flags; at least such were displayed to us when we first draw near the shore. But the people who came first on board brought with them some of the pepper plant, and sent it before them into the ship" (Cook, "Sec. Voy.," Bk. II, ch. iii). In the same group, "when the natives, previous to the massacre, enticed the Frenchmen into the cave, they threw into the sea, in token of peace, several branches of the tree from which they obtained their inebriating liquor" ("La Perouse, Voy.," Lond., 1807, III, p. 87). In the Admiralty Islands, Mr. H. N. Moseley tells us: "On the first canoes approaching the ship, paddles were held up and waved to express friendship" ("Jour. Anth. Inst.," VI, 1877, p. 396). From exhibiting the token is but a step to its presentation, and thus we find in the New Hebrides, "As signs of friendship they present a green branch, and sprinkle water with the hand over the head" (Cook, "Sec. Voy.," Bk. III, ch. iii). A very similar custom is found at the present day in Astralobe Bay, New Guinea, where also on other occasions a dog was brought alongside, and its brains dashed out by taking it up by the hind legs and striking the head against the ship's side, while higher up the coast, waving branches of some kind of palm, and sprinkling the head with sea-water, was the equivalent for peaceful intentions. On all these occasions the herald put on a smile, childlike and bland" ("Jour. Anth. Inst.," VI, 1877, p. 108). Cook also believed that in New Zealand the offering of a branch was an emblem of peace ("First Voy.," Bk. II, ch. i). The same navigator tells us that at Kayes Island (North America) "the natives had a stick about three feet long, with the large feathers or wing of some birds tied to it. These they frequently held up to us, with a view, as we guessed, to express their pacific disposition" ("Third Voy.," Bk. IV, ch. iv). Williams describes this *utu*, or peace-offering, as common in the Pacific, to consist "in presenting to the visitor a bread fruit, a piece of cloth, or some other article with the sacred cocoa-nut leaf, which they call *Tapaa*, attached to it, on receiving which the stranger returns some trifle as a token of amity" (*op. cit.*, p. 77).

Holub ("Seven Years in South Africa," Lond., 1881, Vol. ii, p. 316) describes a custom he met with among the Marutze, which reminds us much of our grandfathers: "There is one form of salutation to a stranger which is observed by every householder, from the king downwards. After a few words have been exchanged, the host produces a snuff-box that hangs from his

or his waistband by a strap, or from his bracelet, and having opened it, offers it to his guest, though sometimes, instead of passing the box, he empties the contents into his own hand, from which he takes a pinch himself, and then extends half-open palm to those about him." Among populations generally look upon as civilized, an offering of welcome or of peace is still made to the stranger; it is thus described by Theodore Bent (*op. cit.*, p. 498): "As he (our host) brought it (the pig) into the house, he made a curious obeisance and placed the pig on my feet, saying as he did so, a little distich, 'I have brought you a little pig, red, red as your beard,' and noticing my astonishment at the absence of any red beard, Papa Demetrios explained that this was a customary way of offering a like present to a guest whom they wished to honour."

Amongst the Andamanese (E. H. Man, "Jour. Anth. Inst.," 1882, pp. 287, 288): "Contrary to the practice among civilized nations, no salutations are exchanged between friends meeting after a lengthened absence; but when time is spent together they remain speechless, gazing intently at each other for sometimes as much as half-an-hour; the younger of the two then makes some commonplace remark which breaks the ice, and they lose no further time in hearing and telling the latest news. It is usual for them also to exchange such things as bows, arrows, nautilus shells, &c., which may happen to be in their hands, when they meet, and such gifts are regarded as proofs of affection."

V.

Joy-weeping is perhaps the most curious of all these customs, and has been noticed among the Andamanese, the Tahitians, and New Zealanders. Amongst the Andamanese, according to E. H. Man ("Jour. Anth. Inst.," XII, 1883, p. 175): "Relatives testify their joy at meeting after a few months' separation by throwing their arms round each other's necks, and sobbing *à chaudes larmes* as if their hearts would break. This to us somewhat incomprehensible proceeding is inaugurated by the women, but the men are not long in following suit, and groups of three or four may be seen as if vying with each other in the loudness of their lamentations of rejoicing until fairly worn out. The day is then wound up with the inevitable dance and song."

Among the Tahitians, "the custom of cutting themselves with shark's teeth, and indulging in loud weeping, was a singular

In the photo weeping as described, one is sitting on the other's lap.

method of receiving a friend, or testifying gladness at his arrival; it was, however, very general when Europeans first arrived" (Ellis, *op. cit.*, II. p. 337). And in New Zealand, R. Burn, after referring to the custom of *ongi*, or nose-pressing, says: "But if you were a person of any consequence, or one much beloved, they used to add to it by what they call the *tangi*, which was cutting the face, breast, and arms with a piece of lava or mussel shell, and giving utterance to a series of the most lamentable howls, whilst forced tears rolled down their bloody cheeks" ("Brief Narr. New Zealand Chief," Kendal, 1848, p. 22).

Mr. E. B. Tylor ("Encycl. Brit.," 9th ed.) objects to this joy-weeping that it practically is mourning—mourning for those who are dead in the interval of separation. Joy-weeping is very common among Europeans, and such cases occur as the reaction after excessive pain or misfortune. But there is probably such a thing as genuine joy-weeping, and such a case lately came under my notice. It was that of a young lady who could not possibly have any notion of the suffering, and who on seeing her baby sister for the first time, could only express by weeping her happiness at having a sister.

VI.

Salutations may also express displeasure instead of welcome. Thus among the Malays the kris is considered "an almost indispensable article of his dress: the Malay always wears his kris on the left side, where it is held up by the twisting of the sarong, with which during an interview it is considered respectful to conceal the weapon, and its handle is turned with its point close to the body if the wearer is friendly. If, however, there is ill blood existing, and the wearer be angry, the kris is exposed, and the point of the handle turned the reverse way" (McNair, *op. cit.*, pp. 245, 298). From the kris exposed to "daggers drawn," is but a movement.

This reversing of the kris reminds one of the Roman *fascēs* carried in procession, and is similar in action to the deaf-mute's gesture for expressing the presence of a friend by putting the two fingers to the *right* side of the nose, but on the *left* side to indicate an enemy.

VII.

There remain a variety of customs which cannot well be grouped, and which are therefore placed here all together.

In Africa we have the disgusting practice of spitting on the person towards whom the spitter is well-disposed. Schweinfurth,

ing the Dyoor, says, "In recent times they have lost some of their ancient habits; for instance, the practice of mutual spitting, which was long the ordinary mode of salutation, has fallen into disuse. Throughout the entire period of my residence in Africa I was never a witness of it more than three times; and in all three cases the spitting betokened the most affectionate goodwill; it was a pledge of attachment, an oath of fidelity; it was to their mind the proper way of giving solemnity to a league of friendship" (*op. cit.*, I, p. 79). James Thomson ("Through Masai Land, London," 1885, p. 290) tells us: "With them (the Masai) it (spitting) expresses the greatest goodwill and the best of wishes. It takes the place of the compliments of the season, and you had better spit upon a damsel than kiss her. You spit when you meet, and you do the same on leaving. You seal your bargain in a similar manner."

Du Chaillu met with a custom, somewhat similar to the above in respect, but far pleasanter in another. He says (p. 430), on parting from Olunda "he took a sugar cane, bit a piece from it, and spat a little of the juice in the hand of each one of the party, at the same time blowing on the hand. Then he said solemnly, 'Let all have good speed with you, and let it be as smooth (pleasant) as the breath I blow on your hand.' Then Olunda received the cane which he is to bring back." And again (p. 393), "Quengueza's men, Ranpano's, and mine gathered before the old king, who solemnly bade us 'God speed,' taking my two hands in his and blowing upon them as their custom is, saying, 'Go thou safely and return safely'" ("Explor. and Adv. in Equatorial Africa," Lond., 1861).

Finally, like other customs and other forms of salutations, as, for instance, handshaking (E. B. Tylor's "Early History," p. 45), which has been introduced by travellers, so do greetings by word of mouth get carried about. Thus when Livingstone was on his way to Loanda, he thought the people in Katema's village had imported something from the Mahomedans, and more especially as an exclamation of surprise, 'Allah!' sounds like the 'Illah!' of the Arabs; but he found a little farther on another form of salutation of Christian (?) origin, "Ave-rie" (Ave Marie). As he remarks, "The salutations probably travel further than the sun" ("Mission Travels," Lond., 1857, p. 321).

The only positive statement as to a race appearing to be without salutations or greetings of any kind is said of the Kumi and Lhousa (Lewin, *op. cit.*, pp. 230, 256), while in Korea, as an author of it John, "Wild Customs of Nippon," p. 245) tersely remarks, "They have no salutation except buffetting each other," and in our not infrequently is certainly a doubtful way of salutation "Edeeyah, have

mostly been spoken of, by such persons as have seen them, under the name of *Bûbîs*, from their usual salutation, on meeting a stranger, of *Bûbî*, the Edeeyah term for friend" (Dr. T. R. H. Thomson, "Jour. Ethn. Soc.," I, 1848, p. 106).

P.S.—Since the above was compiled a striking but painful picture entitled the "Death of the First-Born," has been exhibited at the Royal Academy, by Mr. Ernest Normand. In this picture, the manner in which the mother is embracing her dead child, and also the closeness of her face to the dead face, give her the appearance of being about to kiss the child. If this is so, on what authority does Mr. Normand make out that kissing or even embracing was an Egyptian custom?—I can find no reference to either kissing or embracing in Wilkinson.

MAY 28TH, 1889.

FRANCIS GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

The Minutes of the last meeting were read and signed.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the SECRETARY OF STATE IN COUNCIL OF INDIA.—A Manipuri Grammar, Vocabulary, and Phrase Book, to which are added some Manipuri Proverbs, and specimens of Manipuri Correspondence. By A. J. Primrose, C.S.

— A short account of the Kachcha Naga (Êmpêo) Tribe in the North Cachar Hills, with an Outline Grammar, Vocabulary, and illustrative sentences. By C. A. Soppitt.

— A short account of the Kuki-Lushai Tribes on the North-East Frontier, with an Outline Grammar of the Rangkhoh-Lushai Language, and a comparison of Lushai with other Dialects. By C. A. Soppitt.

— Outline Grammar of the Angami Nāgā Language, with a Vocabulary and illustrative sentences. By R. B. McCabe, C.S.

— Outline Grammar of the Lhôtā Nāgā Language, with a Vocabulary and illustrative sentences. By Rev. W. E. Witter, M.A.

— Outline Grammar of the Kachāri (Bārā) Language as

- spoken in District Darrang, Assam, with illustrative sentences, Notes, Reading Lessons, and a short Vocabulary. By Rev. S. Endle.
- From the SECRETARY OF STATE IN COUNCIL OF INDIA.—Outline Grammar of the Shaf'yang Miri Language, as spoken by the Miris, of that Clan residing in the neighbourhood of Sadiya; with illustrative Sentences, Phrase Book, and Vocabulary. By J. F. Needham.
- From the DEUTSCHE GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE, UND URGESCHICHTE. Correspondenz-Blatt. 1889. No. 4.
- From the BATAVIAANSE GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN.—Nederlandsch-Indisch Plakaatboek, 1602-1811, door Mr. J. H. Van Der Chijs. Vijfde Deel, 1743-1750.
- Algemeen Reglement en Reglement van Orde.
- Notulen van de Algemeene en Bestuurs-Vergaderingen. Deel xxvi, Afd. 3.
- Tijdschrift voor Indische Taal-, Land-, en Volkenkunde. Deel xxxii, Afd. 5.
- From the ACADEMIA CAESAREA LEOPOLDINO-CAROLINA GERMANICA NATURALI-CURIOSORUM.—Nova Acta. Vol. lii.
- Biographische Mittheilungen und Nekrologe. 1881-1887.
- From the AUTHOR (through W. Whitaker, Esq.).—On the Discovery of Palaeolithic Implements in the neighbourhood of Kennet, Cambridgeshire. By Arthur G. Wright.
- From the ACADEMY.—Kongl. Vitterhets Historie och Antiquitets Akademien (Stockholm) Månadsblad. 1887.
- From the INSTITUTION.—Journal of the Royal United Service Institution. No. 147.
- From the YORKSHIRE PHILOSOPHICAL SOCIETY.—Annual Report for 1888.
- From the SOCIETY.—Journal of the Society of Arts. Nos. 1904, 1905.
- Bulletin de la Société Neuchâteloise de Géographie. Tome iv. 1888.
- From the UNIVERSITY.—The Journal of the College of Science, Imperial University, Japan. Vol. ii. Part 5.
- From the EDITOR.—The American Antiquarian. Vol. xi. No. 3.
- Nature. Nos. 1020, 1021.
- Science. Nos. 326, 327.
- Revue d'Anthropologie. 1889. No. 3.
- Revue Scientifique. Tome xliii. Nos. 20, 21.

for General Pitt Rivers, D.C.L. F.R.S. Vice-President, noted and described several skulls and other bones, found in the course of recent excavations at Hunsbury Camp, Northampton, and a Roman Villa at Mautwit, near of Essex.

NOTES on the HYKSÔS or SHEPHERD KINGS of EGYPT.

By the Rev. HENRY GEORGE TOMKINS.

THERE is much likeness in the general condition of those two great focal points of life in the first empires—the head of the Persian Gulf and the delta of the Nile.

At the earliest time of which we have any evidence the one region, like the other, was occupied by a great mixture of peoples, and the Pharaohs of the old empire had to fight on the west with the fair Libyan races, and on the east with the wandering Menti, Sati, Shasu, Heru-sha, Nemma-sha, and the like.

The thirty-seven Amu or Semitic foreigners depicted on the wall of a tomb at Beni-Hassan are rightly renowned as the earliest of such immigrants known to us by any graphic record. But we must not overlook the similar group on an early Chaldean seal-cylinder, engraved by Layard, and elsewhere. Here we see the start, as in Egypt the arrival, of such a clan; and this is very much to our purpose; for these also are kilted nomads with bow and quiver, wife and children; the men are bearded and *equine* in feature like the Amu of Beni-Hassan.

The westward drift from Central Asia in the third and second millennia before Christ is one of the most striking facts of the earliest history. There were two great streams, the one up and across the Euphrates, then through Syria and Western or Eastern Palestine, the other from the Persian Gulf across Arabia to the Red Sea, and across the Straits to Somâliland and Abyssinia and down the Nile.

The invasion of the Hyksôs evidently came by the former channel, and the main movements which controlled the destinies of Chaldaa and Assyria on the one hand, and of Egypt on the other, were conducted on this great curve.

Professor Maspero is quite right, I believe, in tracing this conquest to impulses which set in from the Elamite region beyond the Tigris.

Not simply tribes of Bedâwin nomads were the aggressors, but potentates of the stamp of Kedorl'aomer or the Hittite lords of later date; so that we must not expect to meet with the traces of a single race or leading family of men. In truth the leading and ruling race would be the energetic few, lording it (as ever) over the hordes of weaker sort, weaker, that is, in imperial energy, but strong in sinew and in arms. It is rather the question

grace that we can deal with than that of the "mixed

the Hyksôs (King of the Shasu, or nomad plunderers),
derive from Manetho. But it does not follow that the
of the Shasu were men of their own race.

In order to warrant some opinion on this matter let me lay
are you:—

1. The proper names as they have reached us through his-
torians in the Greek language and otherwise, and in
the monumental records.
2. The characteristics of the statuary attributed to the Hyksôs
rulers.
3. The religion of these masters of Egypt.
4. Then we will rapidly sketch the history, and see what
after-light is given by the brilliant course of counter-
conquest of the XVIIIth dynasty.

is much to be regretted that the monumental names are so
defectively or badly executed (for the most part), or so much
corrupted, and in the Turin papyrus so fragmentary, and in the
papyrus transcripts so variant, and hard to identify.


The names Salatis and Saites given for the earliest ruler would
be added for the name of the Hyksôs god Set, or Sutekh,


and the Semitic title Shallit, שָׁלִיט, which was borne by Joseph,
according to Gen. xlii. 6. It is interesting to find the same
title in effect given by the Assyrians to the Pharaoh long after,
namely, *Shiltanu*, whence "Sultan" (Lenormant, "Hist.," 9 ed.
II, 147). If the reading, Set Shallit, on the statue of Tel-Mokdam,
is correct, it will exactly agree with Saites Salatis, the epithet,
"Lord of Ha-nar," which he bears being also quite in agreement
with Manetho's narrative of the great intrenched camp which
Salatis formed at the city of that name; a name, however,
already in existence, as is shown by a broken statue of Amenem-
hat III, of the XIIth dynasty, found at Sâh. But the reading of
the inscription is disputed. The name Salatis is corrupted by
sculptors or his copyists into Philitis, as it would seem, for he
preserved a vague tradition of the "shepherds" at Mem-

his next name is Bôon, בּוֹן, of which there is no explana-
tion offered except one or two guesses which Wiedemann rejects
as phantastisch (Ebers, "Aeg. und die B.M.," 203; Wiedemann,
p. 32).

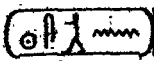

The third name, Aegyptus, or Egyptus, may involve the name
and mean the "Gardens" (Lantini, "Glossol.," 137), a guess
it is my mind to not admit


it comes from the
u in Egyptian

records,  which is inscribed on the right shoulder of the celebrated sphinxes of Sâh, and written in the papyrus Sallier I, with the attribute "beloved of Sutekh," or the like.

Two Hyksôs kings at least bore the name Apepi. The throne-name of one, Râ-âa-us,  is found on a palette in the Berlin Museum discovered in the Fayûm (Eisenlohr, "Proc. S.B.A.," 1881, p. 97) and the celebrated mathematical papyrus Eisenlohr bears date the 23rd year of his reign. His name is also on a table of offerings at Bâlaq. But it is the other Apepi, Râ-âa-gehen (or Râ-ab-tau), whose name is on the statues of Mermashai (Petrie, "Tanis," Insc. 17 c., Plate XIII, 6), and has been read by Wiedemann on the pedestal of a broken statue at the Louvr—which bears an inscription of Amenhotep III ("Aeg. Gesch.," 294). But Miss Edwards tells me that she could not read it there little while ago, viz., in 1886.




The fifth Shepherd-king on the list of Manetho's XVth dynasty as given by Josephus, is 'Iavvas, 'Avvas, apparently the same name as that of 'Iavvîs, Iannes who withstood Moses.

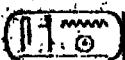
A magician in the Delta in the time of that great patron of magic, Merenptah, may well have borne a Hyksôs name and have been a devotee of Sutekh. I do not know that this name has been found on any monument until this spring, when M. Naville discovered among the ruins of a temple at Bubastis the lower part of a statue consisting of the throne and legs of a Pharaoh with the name inscribed :   which gives us Râ-ian (or Ian-Râ) with a throne-name worthy of notice.

This at once suggests the Iannas of Manetho, and on the other hand it was at once identified by a Mahommedan official with the Reiyân, son of El-Welid, whom the Arab writers call the Pharaoh of Joseph. But there are scarabs which read  and therefore this may be the name, i.e., 'Avvas, or IANNAË, with rough breathing. Indeed, it is now pretty clear that this is the true reading of the name; see the letters of Mr. Griffith and Mr. Petrie in the "Academy" of August 25th, and my letter in the "Academy" of September 1st of this year, in which I have shown reason for identifying the name Khian with Khaian, a name borne by a king of Khindani on the west side of Euphrates, south of the junction of the Khabûr, in the time of Assurnazirpal, and by another prince, the son of Gabbari, who dwelt at the foot of Khamanu, that is, the Amanus range north-west of Syria.

There is a Tell Khafis, south of Kharran, at the head of a tributary of the Balikh River, which may be connected with this name.


As regards the throne-name, it is clearly identical with the cartouche on the breast of the little grey granite lion (or sphinx) from Bagdad, in the British Museum, as Mr. Griffith very well observed, and I am very glad that M. Naville agrees in this ("Academy," 1888, pp. 384, 420, 432, 434).

This cartouche has been variously read. M. Naville, however, reads it (he tells me) User-n-Ra, though the  is placed on the right side, it is the complement of the sign , written here .


He adds, "there is a king  quoted by Brugsch in his *Livre des Rois*, from the papyrus of Turin." And we must compare the throne-name of the former Apepi just



finding of the Hyksôs monument and other Egyptian in Assyria, of Egyptian antiquities at Arban on the Khabôr, and of the cuneiform tablets at Tel el-Amarna in Upper Egypt, furnishes interesting matter for inquiry. But we now come to the last name in our Greek list of Hyksôs sovereigns of this first Shepherd dynasty, (viz., XVth dynasty), that is, Στραών, which I take to be a variant reading of: Ἀσσήθ = An-Set or Set-an, the name of the Hyksôs god Set with the addition of the name of Heliopolis, An.

Prof. Sayce has a scarab which appears to bear the name Set-An . The second sign is equivalent to the name of Heliopolis.

II.—The statuary assigned to Hyksôs kings has been often described. It is most interesting and marked by special characteristics of its own, and seems naturally to fall into two divisions, corresponding with what we know of the history of these rulers, the former having the strong and rugged marks of native genius, the other an Egyptian style and softened aspect.

To the former class belong the grim expressions of Sîn, with a great shaggy lion's mane right up to his face instead of the Egyptian royal head-dress, yet having worn the Pharaonic uræus serpent in metal above the forehead  with the fillet showing in front, and the artificial beard

To the same class belongs the Fayûm, with artificial beard, and as many down the

statue from the sculpted into twice across the head,

and we must believe that the golden uræus rose from the socket-hole which indents the front. A narrow belt crosses diagonally from the left shoulder, and over this hangs a crescent-shaped ornament on the breast which is worthy of notice. This king was clad in the sacred robe of panther's skin after the Egyptian style, with the head of the animal showing in front on the left shoulder, and a foot with claws on the right. This is a highly significant token of initiation into the religion of Egypt. The statue was found among the ruins of Crocodilopolis, the city of the god Sebek.

In the Ludovisi collection at Rome Lenormant identified a head as evidently belonging to the same type. This also has a huge wig of thick spiral tresses falling in front and down the back, and it has the special feature of a great plaited falling below the wig.

It has not the Egyptian beard, but a broad beard of close regular curly hair in parallel curves from the chin downwards. In this it closely resembles the next example, and it seems to have no royal serpent in front.

Next we have the strange twin-statues, standing behind tables which are decorated with lotus-stems and the pendent flowers, and on which large fishes are deposited, while some of the geese of the marshes are suspended at the front and sides. These figures are scantily clad in the linen *shenti* from the hips, and have no ornament visible, but the upper part of the heads and the faces are much broken. Their wigs and beards are of the same style that marks the Ludovisi head. The countenances of all these are of a type that cannot be mistaken. It is altogether alien to the rounded features and winsome cheery expression so familiar in Egyptian royal faces.

The visage is strong, broad, and ample, marked by prominent cheek-bones, and a special muscular fulness about the mouth; the lips prominent but very expressive, and channelled down the upper lip; the chin well-rounded; the nose somewhat sub-aquiline, and nostrils wide. The expression is intelligent, stern, and sad, and full of determined power.

Our second class of this type is not so well illustrated. It is simply Egyptian in attire, and at present I can only speak of two fragments. One is the beautiful colossal head found by M. Naville this year at Bubastis, near to the remains of a doorway bearing the titles of Apepi of the later date, and supposed to belong to a statue of that monarch. It has the Egyptian head-dress called *nems*, and the Pharaonic uræus. The face is most interesting, for it is a refined and dignified version of the type of the Sâh sphinxes.

The countenance is of square frame, with high cheek-bones,

is themselves rather sunk, the mouth and lower jaw but well-formed, and the chin finely rounded up to projecting lower lip, with a very firm, but not surly, nose, rather injured, is handsomely formed and well-portioned; the eyes, well apart, are deboted by cavities ided for the wonderful work in some different material ch only Egyptian artists would employ; but in the absence their orbits there is a proud and calm expression of intellect. We see in this fine face something of Egyptian serenity, but without the attractive cheer of that well-favoured nation. This Apepi of Bubastis is an inestimable treasure in the sculpture-ry of Egypt, and seems to me as high an example of its as the beautiful heads of Seti I. have given us of

int. ne inquiries, M. Naville has kindly sent me in detail. He writes:—

tion on the doorway of Apepi is merely his very large, I should say about 1½ foot high, to eight. It has not been photographed, but I the statue of Raian, in the photograph made in I sent to Miss Edwards from Egypt.

second head, mentioned in a foot-note ("Academy,"

) is that of which you have the photograph. It is not; there is only a little bit of the nose broken off.

as nose is broken in two at the height of the eyes; the type is same; however, I believe that the cheeks are a little fuller.

I believe that both these statues, which were of the same size, represented Apepi, and that it was his cartouche which was engraved along the leg, and which has been twice erased."

[The broken head, and I suppose the other, is of black granite.]

"At present I know only of two Apepi, and the most powerful must have been the second."

M. Naville has since kindly sent me a photograph of this grand colossal head in true profile, which quite confirms the opinion that it is a highly refined version of the sphinxes of Sâh. It is to them that we must look for the strongest presentment of the type for comparison with whatever elsewhere may present true points of analogy.

Our next example is a green basalt statuette in the Museum of the Louvre, of which the lower part is broken off. It is a Pharaoh wearing the same head-dress as the last-mentioned, with the uræus, and the akhet with a dagger thrust into the girdle, the hawk-headed

face suggested to M. potentate. he, the nose and lips of

the same form, and the severe aspect, with brows knit into a frown. It is true that Prof. Maspero has expressed an opinion that this statuette may be of Saïte work; still I cannot but agree with Deveria and Pietret, and E. de Rougé also (I believe). The figure is, I think, not dissimilar to the fish offerers of Sâh, and the *menet* is equally worn by Râ-ian or Khaïan, as the lower part of the figure with the throne found by M. Naville at Bubastis shows. M. Naville, however, agrees with Prof. Maspero.

There is yet one piece of sculpture which has been classed by Miss Edwards as a Hyksôs royal head. It is in that lady's possession, and was bought by the Rev. Greville Chester from the well-known collection of the late M. Peretié at Beirût.

I submit to your inspection excellent photographs, from a cast in three positions. The original is the entire head, only slightly injured in the nose. Miss Edwards has kindly given me the cast, and a memorandum in which she describes the sculpture as a "head of a Hyksôs king." "This head," she writes, "is in dark grey granite veined with diorite, evidently from the Sinaitic quarries, which were those worked by the Hyksôs rulers." When Miss Edwards adds, "This is the first head of Hyksôs type wearing the *Klaft* and *uraeus* of royalty known to science," the statuette of the Louvre has (I think) been overlooked; but it is quite true that it is "the first that has been seen in this country." On careful study this young head presents features such as those which must have marked the early years of the Hyksôs king of Bubastis, and I think it may be a portrait of the same sovereign in his youth, that is, apparently, the second Apepi.¹

And now a word on the character of these countenances. They have a Mongolian aspect, as Prof. Flower has said, and Lenormant had pointed out their Turanian affinity. But although Mariette believed the latter Hyksôs monarchs to be of Khetan race, the sculpture shows a very marked difference, for the *noblesse* of the Kheta had, for the most part, a coarse face protruding in the middle features, but a retreating chin. In this the reliefs of Mer'ash agree well with Egyptian profiles of Hittites, and no one who has well studied the data will believe that the race is identical in these royal heads of Egypt. Nor does the beautifully-wrought relief of Marduk-idin-akhé in the British Museum agree. It is a different type again. The bronzes of Gudea show high cheek-bones and a grim countenance. Some Chaldean seal-cylinders exhibit figures with long and

¹ Professor Maspero found in 1883, at Damanhâr, in the western part of the Delta, some fragments of monuments similar to those attributed to the Hyksôs. ("Hist.," 4th ed., 167, note 5.)

thick hanging locks, and the twisted and twice recurved pigtails are a remarkable feature.

Huge twisted tresses, falling before and behind the shoulders, may be noticed in seal-cylinders from Babylonia adorning the heads of great priests, as, for instance, in M. Babelon's "History," p. 127, and a pigtail such as that of the captured King of the Kheta at Medinet Habû is to be seen on a priestly figure in a seal-cylinder of the first Chaldaean empire, engraved by Ménant ("La Bible et les cylindres Chaldéens," Paris, 1880, p. 32). The Babylonians of later times wore large curled tresses (Rawlinson, "A. M.," Vol. II, p. 499). Lenormant pointed out ("Rev. Arch.," 1868, p. 231) a striking similarity to the Hyksôs heads in a very rude broken statuette of alabaster found by Sir A. H. Layard at Babylon. It appears extremely ancient; its beard and hair are arranged in the same fashion as those of the Hyksôs, with the remarkable difference that the long tresses part behind and come forward, leaving the back of the head with no hanging hair.

It is true that the Kheta wore their hair very long, and divided into huge tresses in front of each shoulder and down the back, but not, I think, educated into those huge curls and plaits, nor elaborated into artificial wigs. The enormous snaky curls or twists of hair which distinguish the representations of Isdubar or the so-called Nimrod-statues are another thing, or a marked variation.

It is a very curious thing that oblique eyes and a most placid Buddha-like countenance characterize the mask of Râ-skenen ta-âa-qen, the valiant Theban rival of Apepi, whose mummy bears such frightful marks of death in battle against those alien foes.

III.—We will now take into account the religion of the Hyksôs as far as our information may lead us, and here we encounter their god Sutekh, identified with the old Egyptian god Set. To this inquiry a great interest is added by the fact that this name equally denotes the god (or local gods) of the Kheta, and that the same object of worship was especially adored by the kings of the great XIXth Egyptian dynasty at the time of the Hebrew Exodus. When we say "the Egyptian god Set," however, it is right to remember that we cannot go back to the origin of the matter; that the strife of Set and Horus may have had some actual historic foundation in the rivalry and fusion of two powers symbolized by the red and the white crown of Lower and Upper Egypt respectively.

Whatever may be the truth of Apepi's attempt to force Sutekh-worship on the Egyptians, it is certain that the Hyksôs kings, whose memorials we possess, were ready to take Egyptian divine titles compounded with the name of Râ, the sungod of Heliopolis

(On.) This agrees well enough with the marriage of Joseph, prime minister of a Hyksôs king, with the daughter of Puti-p-râ, priest of On.

I fear to enter on the great Set-Sutekh question. It seems to me that Set, or Sut, is a fire-god, or a god of solar heat. One form of his name has a determinative of flame (Meyer, "Set-Typhon," p. 2), and his symbolic creature seems to be really a gryphon (eagle-headed lion). If, indeed, we look to "Turanian" quarters, Mr. R. Brown has some interesting remarks on Seth as the name of the Etruscan Hêphaistos, and similar Turanian words meaning "fire-place," "baker," &c. ("Pr. S. B. A.," 1888, p. 348)

We have at present sacred places of Neby Shift in Syria and Palestine, and Deir Seta in Northern Syria, near Edlib.

In the form Setekh, or Sutekh, we have Setekh-bek (equivalent in form and meaning to Ba'al-bek) in the North Syrian Karnak list No. 155; and Sikhi-satakh, in Assyrian annals, as a place (Prof. Sayce tells me) in the Kurdish mountains, east of Euphrates.

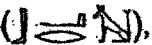
These places may help us to trace the name to its early haunts, and thus to trace the worshippers as well. The Gnostic Sethians in the second century made a wild confusion between the patriarch Seth and the heathen god ("Les Origines," &c., Vol. I, 219), and thus places of Set-worship became burying places of Seth.

The towns whose Sutekhs are invoked to guard the celebrated treaty between Râmeses II and Kheta-sar, form an interesting subject of study. I think I have made out most of them as belonging to the land of Kheta or Khatti, from Euphrates to the Taurus and the Phœnician coast-land; with Aleppo as about the centre of the group. Elsewhere (Bab. and Or. Record) I have something to say on these places.

An argument to prove the existence and "destruction of Hittite palaces on the borders of Egypt," in the time of the XIIth dynasty, has been drawn from supposed data in a stela at the Museum of the Louvre.

But on inquiry I find that the monument in question contains no reference to the Kheta.

Still the sons of Kheth were at Hebron as masters, with their intimate allies the Amorites, in Abraham's days, and the celebrated information as to the building (or rebuilding) of Zoan seven years later than Hebron (Numbers xiii, 22), certainly seems, equally with the common devotion to Sutekh, to connect the Kheta with the Hyksôs domination in Lower Egypt. Set

was fully identified in Egypt with Ba'al () and it is interesting to find that the Phœnician Ba'al-worship was taught by Jezebel to Ahab "according to all (things) as did the

Amorites" (1 Kings xxi, 26). Those who have studied the Egyptian data well know how thoroughly the Kheta were locked in and dovetailed, as it were, with the Amorites in the north and south alike, just as we find them in the Bible; and it seems in a high degree improbable that both these strong races together were not deeply involved in the Hyksôs invasion and lordship of Lower Egypt. They were fortress builders and chariot soldiers, and the nomad hordes of Shasu were their auxiliaries.

We will now turn to the broken materials of history of these obscure times.

Mariette has shown in his Catalogue of Abydos that the XIVth dynasty was not synchronous with the XIIIth, but succeeded it. Kings of the XIVth dynasty were brought to Abydos to be buried (p. 236). It was after the XIVth dynasty that the conquest took place. At Abydos there is a great blank from the XIVth to the XVIIIth dynasty.

The actual history of the Hyksôs period is very obscure. A most interesting inscription of Hatasu in the Speos Artemidos (Stabl Antâs) at Beni-Hassan recites that the great queen had restored from ruin temples and altars:—"I re-established what was in ruin, and completed what was unfinished, for there had been Aamu in the midst of Lower Egypt and Ha-uar, and the foreign hordes among them had destroyed the (ancient) works. They ruled, not acknowledging the god Râ [ignorant le dieu Râ]. (Golenischeff, "Rec. du Trav." Vol. iii, p. 2. The text is given in Vol. vi, p. 20.) M. Golenischeff notices the accordance of this text with the papyrus Sallier I, where the invaders are said to have been settled in "the town of the Aamu;" and he supposes that the name Hyk-sôs (*haq Shasu*) was invented by Manetho as descriptive of these rulers.

It is to be believed that the basis of the celebrated tale of this papyrus with regard to the religious dispute of Apepi and Râskenen is true enough; that some provocation on the part of the Shepherd-king, who built the temple of Sutekh at Zoan, may well have brought on that great struggle in which the Theban King, the third Râ-skenen, called Tan-âa-ken, fell on the field.

This must have been the terrible end of the valiant king whose mummy was found at Dair al-Bahari. But Chabas and Maspero have shown that it was he first of the three Râ-skenens to whom Apepi's embassy was sent. Some relics at the Louvre show that he was the Pharaoh during which the war of 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

For the last campaign we happily have the inscription of Aahmes, the admiral, whose father had been an officer of the slain Râ-skenen, and who fought under Aahmes, the Pharaoh, at the siege of Hanar, and in the long pursuit, and at the siege of Sharuhén, doubtless, the ruined place, Tell esh Sheri'ah, north-west of Beersheba; and afterwards served under Amenhotep I and Thothmes I, the son and grandson of Aahmes, in the great wars of retributory conquest in the land of Naharina of the Rutennu, as far at least as the Euphrates, where Thothmes set up his monument of sovereignty at the north-eastern boundary of his empire, namely, at the important fortified town of Nii, the position of which has not yet, I believe, been fully determined. Babelon marks it on his map on the east of Euphrates above Birejik; but this cannot be. Lenormant had put it on the west side, higher than Pethor. ("Hist.," 9th ed., Vol. ii, p. 234.)

In the short reign of the second Thothmes, the Shasu dared to attack Lower Egypt, but must have been thoroughly beaten off, for in Hatasu's time all went well, and tribute came in freely. But no sooner was this splendid queen's younger brother, Thothmes III, left alone on the throne than a general rising broke out from the borders of Egypt to the northern frontier, and a muster in great force took place at Megiddo, which led to the wars of this most distinguished of all the Pharaohs. A monument of high interest for his time is the inscription of Amen-em-heb, another hero of the mettle of Admiral Aahmes, who closely attended the person of the King in the Negeb, and on to Naharina, fighting near Aleppo, at Karkemish, and in the land of Sentsar, and again at Kadesh on Orontes; and another time at Nii, where the king killed 120 elephants for their ivory. Afterwards he attended Amenhotep II in his victorious campaigns (Chabas, "*Mélanges*," III Série, tome ii). We find the prisoners taken in Naharina called by the familiar name of 'Amu, which reminds me that Balaam is described as dwelling by the river (Euphrates) in the land of the Benê-'Amu. He was a lord of the 'Amu, the Semites, in close contact with the Khatti or Kheta. It is a striking illustration of the collocation of separate races that the Egyptian tableaux represent two highly contrasted types under the name Rutén, or Luten, the one thoroughly Semitic, the other quite resembling the Kheta. This may be well seen in Mr. Petrie's casts.

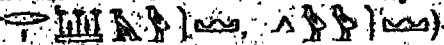
It is also to be noticed as a sign of the times that the noblesse of Kadesh and Tunip (Tennib, near Ezzaz), and others taken in these wars, are called by the Aramaic title, *Marina* (Maran), which shows that the Semitic element still prevailed in these regions.





The name of the land, Sentsar, is highly interesting. It is


by Chabas as a variant of Sangar, a name also used in the time of Thothmes III, as Sentsar was again by Amenhotep

Chabas takes it as the Shin'ar (שִׁנְעָר) of the Bible, and this would be the Sumer of the cuneiform inscriptions. It is, however, not certain that these are variants of one name, and we must take into account the River Sangar (Sajûr), and the Singar hills—country east of Euphrates. But the tribute of the Kings of Sangar, including "blue-stone of Babel," i.e., lapis lazuli, must have come from Shin'ar.


Amenhotep II made war in the Euphrates region, and we find him at Nin in the north ("Zeitschr.," 1879, p. 55, &c.), as well as far south opposite to the Palmyra country. His successor, Thothmes IV, made war against the Kheta, from whom Thothmes III had received tribute, and had a valiant staff officer with him, a successor of Aahmes and Amen-em-heb, called Amenhotep, who fought by his side from Naharina to Galla-land in Africa (Brugsch, "Hist." Eng. tr. I, p. 413).

The same far-reaching empire owned the sway of the next Pharaoh, the celebrated Amenhotep III, whose dealings with Naharina were still more important; for, although his wars were mostly in Kush, it was in the riverland of Naharina that he hunted and slew 210 lions, and won his beloved queen, Taia, the daughter of Iuâ and his wife Tuâ. Naharina was his favourite region, and we shall soon know much more about it from the invaluable discovery of some three or four hundred cuneiform tablets, which had been taken from Thebes by his son Amenhotep IV (the notorious Khu-en-Aten), and were found among the ruins of his short-lived capital at Tel el-Amarna the other day. Among these are despatches of a surprising kind from North Syria and Mesopotamia as well as from Palestine, some of them from the father of Queen Taia to his son-in-law the Pharaoh. This potentate of Naharina turns out to have been Dusratta, King of Mitanni, although in Egypt he was called Iuâ. Possibly we may account for this. In the inscription of Hatasu before quoted it is said "the peoples of the Resha and the Iû hide themselves no more before my majesty!" (the names are ). This indicates

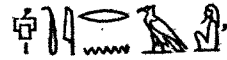
confidential relations, and it seems to me possible that Iuâ,  may be a native name of the . In people with the prince's proper name while  may be a title of .

of the King" in the first year of Mer-en-Ptah), whose native name was 

Ben Mat'ana (𓂏𓂏𓂏) of the land of Tarbasuna (𓂏𓂏𓂏). (Mariette, "Abydos," p. 421).

I would also compare the name  with Bent-Resh, the possessed princess of the land of Bakhtan, which I take to be Bukhtan, with a river of the same name, on the east of the Tigris; for it is not unlikely that this region offered tribute to the great queen of the XVIIIth dynasty.

Insa was not the only prince of Naharin whose daughter was wedded to Amenhotep III, for a princess of the odd name Kirkip was given to the Pharaoh by her father Satharna, Prince of Naharina.

[I now (July, 1889) see the name of Šutarna as the writer of one of the cuneiform tablets of Tel el-Amarna mentioned by Dr. Winckler ("Zeitsch. f. Aeg. Spr.," 1889, p. 59), and this I take to be probably the identical King Satharna,  Prince of Naharina.]

The name of Kirkip perhaps lingers as a local name at Djirdjib, west of the Khabûr river (see "Sachau," p. 226).

For the story of this princess see Brugsch, "Zeit.," 1880, p. 82. It well illustrates the relations now so fully disclosed by the cuneiform tablets, which show that Amenhotep III and IV were in close and friendly relations as suzerains with the Babylonian Kings, Kurigalzu and Burnaburyash, father and son, about the middle of the 15th century, B.C.

My object in reciting these affairs of two centuries after the expulsion of the Hyksôs, is to show who were the races and rulers whom the Pharaohs of the XVIIIth dynasty, heirs and successors of Aahmes, sought out by strenuous warfare and conquered into willing submission; for they must have found in Palestine and Syria, and on the Euphrates and Tigris, the powers and races whom they had driven out of Egypt. The powers indeed were expelled, but doubtless the common folk remained, and it has been well shown by Mariette and others that the stern and sinewy people of the great meres and surrounding deserts of the Delta are of the same race, to judge by their likeness in face and figure to the sculptures of Sâh (Mariette, "Mélanges d'Arch.," Vol. i, p. 92); and Miss Edwards has well cited Heliodorus and Achilles Tatius (A.D. 400-500), who "describe the bucolic population (Bashmurites) of this district as a fierce and lawless race of great size and strength, who went bareheaded, and wore their hair in long locks to their shoulders, these

Amorites being the descendants of the Hyksôs of ancient times" ("Harper's Magazine," Oct., 1886, p. 722). Well might our forefathers have been "an abomination to the Egyptians." Now it is hard to doubt that the most migratory, predacious, and enterprising races that lay between the Nile and the Tigris (perhaps still further afield), being driven out by the shock of their conquests as that of Kudur-nan-khundi, the Elamite predecessor of Kudur-lagamar, should "go down into Egypt" with wives and children, horses and cattle, as the Libyan hordes endeavoured to do in the days of Merenptah, and as the Arabs did long afterwards. This view of the Hyksôs invasion as due to the movements of the Elamites from the east on Babylonia is excellently expressed by Prof. Maspero ("Hist.," 4th ed., p. 161). If these invaders of Egypt had fled from the power represented in the book of Genesis by Kedorla'omer (Kudur-lagamar), then the welcome given to Abraham by the Hyksôs, as by the sons of Ham and the Amorites, would be very natural, for probably the end of these races would be found in Egypt, and the Pharaohs of this régime would know how to estimate them.

The coincidence which Brugsch has pointed out in the inscription of Baba, at el-Kab, which records his philanthropic provisions during the long famine, should not be overlooked, when we consider that he was apparently the father of the Admiral Aahmes who bore so distinguished a part in the war of liberation. Baba's exertions may have been part of the general administrative work of Joseph.

The large alien population that remained settled in the Delta must account, as Stern has said ("Deutsche Revue," Oct., 1882), for the almost entire absence of monuments yet discovered, in that part of Egypt, of the great XVIIIth dynasty.

In the spring of this year M. Naville found at Bubastis two broken statues of scribes of the time of Amenhotep III, and a fragment containing the name of Aten-Râ, the special object of worship of Amenhotep IV, Khuenaten.

It is earnestly to be hoped that tombs of the Hyksôs may yet be found. Then we may have historic information in a coherent form, instead of the shreds and patches that have hitherto reached us.

In conclusion I would notice a few chief points which strike at the present condition of our knowledge:—

I do not think that the Hyksôs could have been of the same race as the people of Pân (South-west Arabia and land), for neither the sculptured faces, nor the cast of the figure of the present occupants of the eastern part of the Delta in the more lands, resemble them in type.

of the Pûnites, with whom the Egyptians of the XVIIIth dynasty were on such friendly and polite terms. I think, indeed, that Queen Hatasu had a *corps d'élite* of Pûnite body-guards in her own service (see Meyer, "Hist.," p. 217, woodcut). I do not say, however, that the Canaanites of Palestine found no place among the Hyksôs. Doubtless they did, and such useful people as that Syrian of Gebal, whose receipt for eye-salve is given to us in the papyrus Ebers (Wiedemann, "Gesch.," p. 278), would be very welcome in Egypt.

2. The type of the sculpture of which we have been speaking is so clearly marked off that I can scarcely call to mind anything else to compare closely with it.

The colossal head lately found at Bubastis (now in the British Museum) has the very same cast of features and expression, heightened in all finer attributes, and softened by Egyptian culture, and I think this must practically settle the question of the Hyksôs origin of the older sphinxes and statues. They cannot now well be attributed to some local school of art older than the Shepherd Kings, as, for instance, Meyer has ascribed them to the Herakleopolitan IXth and Xth dynasties ("Gesch.," p. 143, &c.); and I think the Semitic symbolism of "government laid upon the shoulder" agrees with the inscription of Hyksôs titles on the right shoulder, or arm, instead of the breast, as Mr. Petrie has observed ("Tanis," p. 12). He connects it with the offering of the right shoulder in sacrifice as typical of consecrated power. The physiognomic type, however, is not Semitic nor Kushite, nor Libyan, nor (I think) Khetan. It is, as Professor Flower said, of Mongolian affinity, or the like. We can shut out a great many races, but we hardly yet know which to admit, so little do we know what Akkadians, Sumerians, Cosseans, and others were really like.

There is, however, something of the Gudea statuettes in these heads, but they are very unlike the short rounded faces of the sculpture of Telloh.

That we should have before us so distinct and so highly interesting a type is most encouraging to further research.

Since this paper was written I have seen the observations of Prof. Virchow on the Pharaonic mummies and sculpture, in the "Sitzungsberichte" of the Berlin Academy, 1888. With regard to the Hyksôs sculpture he gives linear sketches and measurements, including the colossal head found at Bubastis, and remarks:—"The alien character (*Fremdartigkeit*) of these features is observable at first sight, but their ethnographic position (*Fixirung*) presents the greatest difficulty. . . . Perhaps the originals were Turanians. But I know not how to say

what (Turanians). Of Akkadians no trace has yet been discovered in Egypt."

It will be noticed that the learned physiologist speaks with greater doubt than Prof. Flower. The problem is, however, at least very hard of solution. Still we have here only the greater incentive to perseverance. Some monument, some scrap of papyrus, some unnoticed trifle in a museum, in private hands, or lying among the potsherds, may give us the clue we require.

A reasonable and staunch spirit of inquiry does not often fail in the end. The great discoveries, within so few years, of the royal mummies of Deir el-Baheri, the store city of Pithom, the military post at Takhpankhes, the Greek colonial town of Naukratis, and the unexpected historic monuments of Bubastis; and (almost more surprising) the cuneiform tablets of Tel el-Amarna, are good warrant for the hope that, as the philosophic and devout Kepler said, "God will be so good as to let us some day the things that we so earnestly desire to have told us."

DISCUSSION.

Mr. F. GAXTON having been assured by Mr. Tomkins that there were no grounds, philological or other, for supposing that the pastoral possessions of the Hyksos races had been limited to sheep, thought it a great mistake of Egyptologists to describe them by the word "shepherds." It gave a misleading and petty idea of the social condition of those races. Tribes who possess the means are tempted to become marauders on one another on horse, for oxen are valuable beasts, and they can be driven a gallop, and being much less dependent on water than sheep can be driven far. Hence cattle-owning tribes have become daring "cattle-lifters," bold horsemen, and predatory Shepherds, by the force of circumstances, have milder manners. Had the Zulus possessed nothing but sheep, it is very likely that they would have developed the warlike aptitudes by which they are now distinguished. The word "herdsmen" might be used with perfect propriety to replace "shepherds" in connection with the Hyksos. It is correct in its literal meaning, as well as in the associated ideas that it suggests.

Mr. F. G. HILTON PRIOR understood Mr. Tomkins to say that Amenhotep III slew 210 lions. Being familiar with the large number of that monarch, he begged to differ from him in that direction, and should like to state that during a period of ten years, that is to say, from the first year of his reign up to the tenth, he slew 102 fierce lions.

Dr. Knowlton said that as Mr. Tomkins had mentioned the lion England of the 14th

century, he had only mentioned the lion of the 14th century, Mr. Tomkins, Mr. Tomkins, Mr. Tomkins,

it might interest the Institute to know that the broken portions are now put together and placed in the Egyptian Gallery of the British Museum. The shoulders and left arm not having arrived with the other fragments, the head cannot at present be fixed, but some plan will probably be devised either to restore the shoulders, or a further search will be made for them at Bubastis, so that the figure may be completed, of which the portions at present in our possession weigh between 13 and 14 tons. After a most careful search Apepi's name has not yet been found upon the statue, but it might have been upon the missing arm, where the Hyksôs kings generally placed their cartouche.

Mr. G. BERTIN said that there is now no doubt that there once existed in Syria a Turanian speaking population, but if the names in Syria are Turanian, it proves only that such a language was formerly spoken, but does not prove that it was still used when these names were employed, as in France the name of rivers are Keltic, though Keltic has been dead for nearly 2,000 years. In like manner the Greek name George does not prove that the Georges are a Greek population, nor can we conclude that the French are Tuntons because they were ruled by kings called Henri, Louis, Charles, &c. Chabas and De Rouge had arrived at the conclusion that the shepherds who invaded Egypt were a Semitic speaking population, and in spite of the new "Hittite" monuments the conclusion still held good. Mr. Bertin did not believe that the invaders of Egypt came from the east through Babylonia, for at that period the Semitic speaking populations of that region were too strongly constituted; if these invaders did not come from Syria itself they must have come from Asia Minor. As to the elephant, whose presence in Syria was a surprise to Egyptologists, it is well known to Assyriologists that in ancient time they were abundant in all Western Asia. Even as late as the Assyrian Empire the elephants were hunted by the kings. These elephants were of the same species as the Indian, not the African elephant.

Mr. ST. CHAD BOSCAWEN also joined in the discussion, and the Author replied.

The following Paper was taken as read—

*The RIGHT of PROPERTY in TREES on the LAND of another, as an
ANCIENT INSTITUTION.*

By HYDE CLARKE, V.P.A.I., V.P.R. Hist. Soc.

FROM 1860 to 1867 I was Vice-President of the Imperial Land Commission in Asia Minor, and then I became acquainted with the fact of there being separate property in trees, on the value of which we were called upon to adjudicate.

ANNA.—*The Right of Property in Trees on the*

is property was of two kinds, one was individual property in communal or government woods. These trees were were called honey trees, being trees in which the wild bees

a other kind of individual property was that described by Codrington (Journ. Anth. Inst., xviii, p. 311), namely, trees planted on the land of another man, who was the owner of the land. These were chiefly olive trees.

Thus in a field there might be seven olive trees, say three belonging to a widow and two each to daughters, in no way related to the owner of the field. There was separate compensation to the latter, and to each tree owner.

These tenures were mentioned by me before the Domesday Congress in 1886, and are referred to in the proceedings. They called my interest, and until the testimony of Dr. Lydeard to me to be anomalous, so commonly that property begins in land. It will probably be that there are many examples of tenures in trees besides given by me.

These appear to me to give the clue to the origin of Here we have paid little attention to honey since, but it held a more important place in the Domesday record. We may do America. It is difficult to find a honey forest, and the American bee-hunter has catching a bee, and making a bee-line to the bee flies straight, another bee is caught with the other line, and thus determine a site of the tree in the tangle of the forest. only to rifle the store for the season.

in Asia Minor frequent the same tree year after year in a hollow tree, and the villager who can find such forests, which are sometimes the divisions between tribes (as in Domesday) renders a great service to the tribe. It is well therefore that he should enjoy a prior

claim form—and looking to the value of honey trees elsewhere, and the property in them—it appears to me that a right of individual property may have been so first acquired, and this has a reason with me for instituting this enquiry on account of its value in the history of jurisprudence. Although our laws upon land as peculiarities does not confirm this value, it does not always in summer

pasturage and winter pasturage. What is, too, of great importance is the right of way, and in this respect the passage of large herds of cattle, and, till lately, of the vast flocks of merinos in Spain, and of flocks and herds in Asia Minor. Pasturage is inimical to husbandry.

It is not surprising to find in communities that, when cultivation has been introduced, individual ownership does not necessarily follow, but the cultivable land is each year distributed among members of the community or township, sometimes by lot.

Property in trees may thus be conceived to precede property in land, which of itself would be later than the pastoral state. The man who discovered a honey tree or date palm, or made an olive tree bear, would acquire a specific privilege. When once such a tree yields products it continues year after year, but a field must be yearly cultivated, and it matters little to the cultivator what field he uses for the season, for he looks to the crop. Hence the trees may have given ownership in the land, rather than the land given ownership in the trees. In later times in most systems of laws, trees on land become appendages of the land, particularly in Europe. In Asia Minor, in this day, land varies greatly in value. Generally speaking, corn land is unfenced, the grain is sown broadcast, and such a field is not considered, as here, to be the choicest property. Unsown land in Asia Minor was polled by the Commissioners at from 5s. to £1 per acre, as in Australia or Canada; tilled land at £5, while ground cleared for cotters or planted as a fig orchard or vineyard, and fenced, would be valued £20 an acre, or more. So, too, fig orchards or vineyards have a special and high value as compared with corn ground.

My knowledge with regard to Asia Minor remained a solitary fact with me for a quarter of a century, although, as will be shown in this paper, there are many examples. My only idea was that this institution might have been derived from China, as many of the institutions of the Turkish Empire conform to those of China. That it must be an ancient institution was never a matter of doubt in my mind. The ancient origin of our modern laws has always appeared to me a fact in anthropology, and one well deserving of investigation. The legends of lawgivers and the history of the Laws of the Twelve Tables have always appeared to me to relate to the transmission and continuity of law, the principles and practices being, in many instances, preserved to this day, although many old laws have perished under the influence of social and political changes.

In that great practical school of comparative history, in which so many years were spent by me in Asia Minor, there was much

to be contemplated in respect to law as well as other institutions
 let my eyes were the pastoral or nomad tribes encamped in
 black tents, having driven their flocks and herds from most
 tant regions. They had come in contact with the cultivator,
 entering on any ground which had been cropped, and even break-
 ing fences. Then the cultivators, as many have observed, used
 implements which are described by Homer and Hesiod.

Thus each epoch was depicted in life even to the railway
 which crossed the country and to the telegraph wires which
 spanned it. So it was in law: the most ancient institutions
 were found in being, as the scriptural rights and wrongs of herd-
 men and husbandmen already described. What we regard as
 the Germanic institution of frankpledge was in full force and
 in useful application, but assuredly not derived from the
 Germanic codes. For him who cared for it there were to be
 found, in full exercise in their respective communities, the
 Mosaic Code, the Institutes of Justinian, and even English and
 American law. There are few, however, who have the know-
 ledge or the desire to profit by opportunities offered by the
 living instances of so many varied ancient and modern insti-
 tutions, preserved among populations of many races and many
 languages.

With regard to my own particular problem of the trees, the
 first stage in its solution came from a most remote region, and was
 a direct result of those researches in comparative science which
 it is the function of the Anthropological Institute to promote.
 It was through a paper read by the Rev. R. H. Codrington,
 D.D., on Social Regulations in Melanesia, in May of this year
 1889,¹ and published in our Volume XVIII, p. 311. As this
 paper of Dr. Codrington's is for our purpose brought under a
 new aspect, it is desirable to re-print textually the page of his
 memoir relating to property in trees. It explains the subject
 well, and it would be inconvenient for the student or reader to
 turn back to the volume if it were accessible to him.

"Land is not held in common; every one knows what
 belongs to himself. Yet the individual has the possession only
 of what he has inherited, and uses for his lifetime as part of the
 whole property which belongs to the family. There are not two
 or more divisions of the land thus held in property correspond-
 ing to the marriage of the people; the land of these
 divisions is in the origin of each settle-
 ment the men and women worked together;
 as it is in the marriage

divisions, and the land is in possession of families. The chiefs have nowhere more property in the land or more right over it than any other men; though, naturally, they are willing to assert such claims in selling to Europeans, and often use their power to drive away the owners of gardens they desire to occupy. Before the coming of Europeans, the sale of land was not unknown, though certainly not common: of late especially in the New Hebrides; much land has been nominally bought from chiefs or supposed chiefs, but no true sale. There is no remarkable example of the fixedness of native right of property in land to be seen at Saa in the Solomon Islands, at the southernmost part of Malanta. The much greater and much more important number of the inhabitants are descendants of refugees, who came, eleven generations ago, from inland, and were received by the then owners of the place, who allowed them the use of land for houses and gardens. To the present day, with the exception of some parcels they have bought, or which have been given to them, these immigrants, even powerful chiefs, have no land of their own; it is perfectly understood that the land they occupy belongs to the original inhabitants. But, in fact, everywhere, or almost everywhere, the abundance of land makes it of little value.

"If an individual reclaims for himself a piece of bush land, it becomes his own; and the different character of his property in it is shown by the difference in the right of succession to it. If, as sometimes happens, a village grows up in the garden ground of an individual, or of a family, the property in the house sites is recognized as not being altogether that of the occupiers. They pay no rent, but they show a certain respect and consideration for the representative of the proprietor.

"It is remarkable that fruit trees planted, with the consent or acquiescence of the owner, upon another man's land, remain the property of the planter and of his heirs. In a true sale, the minute and accurate knowledge of property in land and trees is remarkably displayed. I once completed the purchase of a site for a mission school in the Banks' Island, and found the rights and the limits, and value of the rights, of every man and woman concerned surprisingly acknowledged and defined by common consent. When I thought all was finished, a fresh applicant for payment on account of a fruit tree appeared from a distance, accompanied by the owner of the land on which the tree grew, who testified that the claim was good. 'Certainly,' he said, 'the claimant's grandfather had planted that tree, and he had the right to it.'"

It will be seen that the state of affairs described by Dr. Codrington exactly fits that observed by myself. It was

not a mere coincidence, and its great distance in space Minor to Melanesia was an anthropological measure, as been pointed out by me, corresponding to a great antiquity. It gave a strong reason for prosecuting to discover other examples of what was undoubtedly an ancient institution widely distributed.

The fact of the instance occurring among savages in Melanesia, far from affording a plea for neglecting its relevance, was with a reason for studying it and paying due attention to it. That McLennan discovered in Australia and Polynesia, and which has thrown a new light on the prehistoric period of the East and West, what Bleek discovered of the relations of Australia show the value of illustrations from remote regions where prehistoric period can best be preserved. There is a special inducement in this case to enlist my pen in the XIV Volume of the Journal of our Institute, p. 142, had made a strong impression on me by Mr. A. W. Howitt and Mr. Lorimer Fison, "The Cave and the Horde," and institutions of Attica, a matter of controversy with classical scholars, on the existing practices of Australian blacks.

I was present at the reading of that paper, and having taken part in the discussion (p. 168), my reasons for placing a great value on the evidence of savages will there be found. The savage of this day is no more the originator of the institutions he preserves than is the Slav or Albanian immigrant, now resident in Attica, the author of Hellenic institutions, neither are Hellenic institutions necessarily Aryan. The true solution is the spread of culture by the white Turanians, from whom both Aryans and Australians have derived what we now have in evidence. Upon this doctrine of anthropology the present course of investigation throws light. The paper of Mr. Howitt and Mr. Fison appeared to me to have a direct relation with the matter marked by me in the paper of Dr. Codrington. What struck me was that in Asia Minor the olive is one of the special signs of property, and it may be that the olive has a particular relevance to the tradition of the doctrine. The olive has a well-known place in the legend of Attica, and likewise in the whole. The olive is found on the autonomous coins as the representative of a state, as recorded by me in my paper on the olive in the Transactions of the Institute of Enquiries.

the Institute
of Enquiries

was made by me among leading juriconsults, students of institutions, travellers, and others to obtain information. Very much labour was undertaken by my friends, sometimes resulting in obtaining merely negative information, but contributing to the building up of the subject. Among those to whom thanks are due are Professor Sir Frederick Pollock, Bart., Professor F. W. Maitland, Mr. C. H. C. Carmichael, M.A.I., Mr. Frederick Seebohm, M.A.I., Sir Thomas Wade (late H.M. Minister in China), the Chinese Legation, Sir Spencer St. John, M.A.I. (H.M. Minister in Mexico, formerly in Sarawak), Mr. Alfred R. Wallace, F.R.S., M.A.I., Sir Richard Temple, Bart., M.P., M.A.I. (formerly Lieut. Governor of Bengal), General Sir C. P. Beauchamp Walker, M.A.I., Mr. M. J. Walhouse, M.A.I., Mr. Rudler, M.A.I., Mr. J. F. Hewitt, I.C.S., Mr. Francis A. Munton (late Pres. Law Institute), Mr. P. Edward Dove (Sec. Selden Society), Mr. R. Biddulph Martin, M.A.I., Mr. W. M. Crocker (North Borneo Company), Mr. H. H. Howorth, M.P., M.A.I.

Mr. William M. Crocker, of the British North Borneo Company, informs me as follows, and this has been confirmed by others. This may be considered as an intermediate extension of the Melanesian area:—

"The most striking instance I know of in Borneo with regard to the right of property in jungle trees is connected with the Katapang tree.

"This tree grows to a great height. It has a long, straight, clean trunk, and throws out its branches near the top, resembling an open umbrella. Being much frequented by bees, a considerable revenue is derived from the wax obtained by the natives from the nests; and, as a consequence, their rights are so jealously guarded that lawsuits in connection therewith are not uncommon.

"When the Chinese were coming into Sarawak in large numbers, and taking up land for gambier and pepper planting, many Dyaks came to complain of the destruction of property which had been in their families for generations.

"The Government offered to forbid the Chinese to cut the trees down, but when the native owners asked that the jungle for 200 fathoms all round each Katapang tree should also be allowed to stand, without which the bees would desert the neighbourhood, the Katapang trees and old customs had to fall before the enterprising Chinese, who willingly paid a few dollars as compensation."

Mr. Crocker likewise called my attention to the existence in Borneo of another special property in the case of caves containing edible birds' nests, of so much value for sale to the Chinese as a commodity.

Mr. Crocker says that the bees build in the clean branches and trunk of the trees. He has seen between twenty and thirty bee nests in one tree.

Sir Spencer St. John observes that in Borneo, speaking of his own knowledge of Sarawak and his travels in the island, the land nominally belongs to the state or the tribe, but it is not a private property in land in our sense of the word. He, too, had observed that certain of the Tapang, on which the bees construct their nests, often belong to special families, and would not be touched by their neighbours.

Sir Thomas Wade kindly made much personal research in Chinese law books, besides consulting the Legation.

He wrote me lately that so far he had not learned much in the matter of separate proprietary rights in land and trees, and inclosed translation of a memorandum that he had received on the subject from the Legation. In the laws he had not as yet found anything to help, but was examining the case books.

T. Wade's Memorandum is as follows:—

Where hill-farms or gardens are leased the tenant will pay proprietor a yearly rent. All fir trees or bamboos on the land (before it is let) belong to the proprietors, and the tenant is free to appropriate them. If there were no such trees on the ground, as above described, when it was let, and such trees were subsequently planted by the tenant, all such trees would be at the disposal of the tenant."

The only bearing this has is a recognition that the tenant can have a property in the trees apart from the landholder. China is so vast, and the conditions of its districts are so various, that further and more definite information may be hoped for. The occupation of the tenant and separate right appears to be derived from the ancient and original practice.

The next region in which the separate property can be traced is in India. There it must be found in many places, but as yet the only district known to me is Chota Nagpore. This was communicated by a well-known observer of Kolarian and Dravidian institutions—on which he has written some valuable papers for the Royal Asiatic Society—Mr. J. F. Hewitt. He says he knows that it is frequently found that fruit trees growing on land owned by persons other than the owners or cultivators of the soil. The unknown trees which are exceedingly valuable, are jointly divided among the inhabitants of the villages near which they grow. This is certainly the case common in Chota

Nagpore.

on the summit of a

tree

in the

tree, the Dima

or Malur

in the Jo

or of Kew referred me

a Indian food tree, by

of the Society of Arts

Feb. 25, 1881, p. 285. The name is spelt by Europeans in at least a dozen different ways, and is applied to *Bassia latifolia* and also to *B. longifolia* and *B. butyracea* whose fruits are also edible. The singularity of the genus is said to consist in the fact that, besides affording eatable fruits, their fleshy deciduous corollas are largely employed for the same purpose. They constitute a staple and sometimes almost the only article of diet available to the poorer classes of Indian natives during several months of each year. The tree is abundant in Central India and is cultivated in many other districts.

The produce is collected chiefly by the women and children. At night bears, deer, and other animals visit the trees to take their share of the crop, and in the morning and late evening jungle fowl and pea fowl. Cattle are very fond of the flowers, and in the season cow's milk has a strong scent of mhowa.

Mr. Lock says that it is very difficult to obtain any trustworthy statements as to the yield of the trees, nor does he say anything as to separate ownership. He does, however, state that the trees are rented (evidently separately), and that their rent varies according to the yield of rice and other produce. Mr. V. Ball, late of the Geological Survey, may have given more information, for he recorded a great range in prices.

We are informed that according to some authorities two mounds of mhowa will furnish a month's food to two parents and three children. It is eaten both fresh and dried and mixed with other food articles.

It is largely distilled for a highly intoxicating spirit called dara. As much as six gallons of proof spirit have been obtained from one cwt. of the flowers. An oil is also extracted which is used for cooking purposes, for mixture with ghee, for lighting, and for soap-making. The dried leaves will keep for any length of time.

Sir Richard Temple is of opinion that relics of tree property are likely to be discovered in Ceylon as a forest country.

Coming back to the nearer East, and thereby to Europe, we have this individual right in trees existing as an ancient and a modern practice.

So far from this practice being confined in Turkey to Asia Minor, individual property in trees prevails as a general law in the Ottoman Empire. Miss Pauline Irby, who has written much on the Balkan countries, found it in Bosnia, as described by her in the "Contemporary Review" for July, 1889, p. 34.

An estate of about forty acres had been left by a Turk to his two sons in two parts. To the one son he had assigned what was called the "garden," which consisted of an orchard of plum trees, and, besides this compact piece, included all the fruit trees.

ears, and plums, straggling hither and thither about
which were assigned to the other son as a separate

separate tree property Miss Irby bought.

Plum trees acquire a special value as being largely
employed in distillation of a strong spirit in Bosnia, Servia,
and in neighbouring countries which have not been
under the administration of law which may be considered to be
peculiar or Turkish.

How far the practice is a survival locally must be matter of
future examination. It is true it is found in a district of
ancient Turanian culture, but the intermediate stages of trans-
mission are wanting.

Maitland has pointed out to me a passage in the
Laws of the XII Tables, 31-32, but other enquiries have prevented me
from pursuing it. The general tendency of legislation and
administration during the Roman Empire was to concentrate the
ownership, and to exclude the claims of tenants.

It is time we may find it worth while to reconsider
the rights of forest rights under the aspect of our present
situation. There is generally in most regions a communal or
tribal right to take from forests fuel, and in some cases
food. In India and in Turkey where the State is organising
forestry and forest laws, such rights are recognised.

That the practice under consideration did anciently exist in
the islands was ascertained for me by Mr. Frederik Seeböhm.
Traces in the Brehon laws of Ireland. This connexion
has given great satisfaction to Sir Henry S. Maine, for
a special interest in the Brehon laws, the authenticity of
which he vindicated as handing down ancient materials. He
believed largely on the doctrine of discovery, an element of
property rights and title which is the real basis of the theme
presented before the Institute by me. In fact, this all goes to

show that Henry Maine in seeking the origin
of the survivals to be found preserved
under conditions of society.
Gone, however, there is nothing on the
H. Maine's "Ancient Law," his lectures
on "Institutions," or "The Village Commu-
nist."

I have to me the passages in these obscure

"Ancient Laws of Ireland," iv, p. 169.

Bees Judgments.

The bottom is entitled to the fruit of the top every fourth year—of the land in which the fruit is sown.

Commentary.—"The distribution of the swarms, i.e., the swarms to be divided by them, i.e., in the 4th year. 'For the bottom is entitled,' i.e., for the owner of the bottom of the tree becomes entitled to the fruit of the of its top every fourth year, i.e., it is to the owner of the land in which (the tree) is planted.

"In the other three years it is divided into two parts between the land in which it is planted, and the land out of which it grows."

This allusion is made, says Mr. Seeböhm, to get a rule for the rights as to a swarm of bees in the top of a tree.

Again in the *Senchus Mor* is another passage.

"Ancient Laws of Ireland," i, 203-207.

"Senchus Mor.

"The appropriated tree 'which is in the forest.'"

Commentary.—"The appropriated tree which is in the forest,
i.e., the
'it is a tree with goodly fruit and its right
is in the person who has.'"

"Thus," observes Mr. Seeböhm, "private appropriation in the possession of a tree on the land of the tribe is admitted." Indeed it will be noted throughout the examples given in this paper that in the case of trees, whereas tribal rights govern the land of the region, individual and exceptional rights are accorded in the ownership of trees. In my opinion this marks the stage from tribal and undivided jurisdiction to individual property, in realty individual property previously being confined to a man's weapons and implements of chase.

My own explanation of the reason for these ancient and common institutions being found in Hibernia may be known to some. It is that, like the female succession among the Picts dealt with by me in my paper under that title before the Royal Historical Society, these evidences belong to what for convenience has been called the Iberian or pre-Celtic epoch in these islands. Upon this head our President, Dr. Beddoe, has made many observations with regard to the physical remains, and Professor John Rhys has produced others bearing on the mythology. This matter of the Brehon law is another illustration of the like tendency.

and in most European countries, the vestiges of rights have ceased to exist. As Professor [redacted], after long study of manorial records, the tenements usually belong to the lord and not

Professor Sir Frederick Pollock, is from his " p. 34, in dealing with the

1 v. White, 14 East, 332.

(Head-note.)

f trespass for cutting down and converting
 defendant justified as growing upon his soil
 plaintiff replied that the trees were his free-
 hold of the defendant; and this was held
 wrong that they grew on a certain woody
 which surrounded the plaintiff's land, but was
 by any fence from the several closes adjoining, of
 named part, belonging to different owners; and that
 at time to time the plaintiff and his ancestors, at their
 pleasure, cut down, for their own use, the trees growing within
 the belt, and that the owners of the different closes inclosing
 the belt, never felled trees there, though they felled them in
 other parts of the same closes, and that when they made sale of
 their estates, the trees in the belt were never valued by their
 agents, because they were reputed and considered to belong to
 the plaintiff and his ancestors, in which the several owners
 acquiesced.

Upon this Sir Frederick Pollock comments: (*Pollock on Possession*, p. 34.)

The disputed ground was a belt of wooded land fifteen wide outside the plaintiff's enclosure. The land beyond this was owned and occupied by various persons, of whom defendant was one.

"In an action against the defendant for trespass by encroachment in the part adjacent to his own land, evidence was of the conduct of owners and occupiers of other land situated, besides the defendant's own predecessor in title; had not attempted to take the trees within the seven-foot belt, but on the contrary had both felled and planted them in the same way, and had acquiesced in the trespass for a long period of time, was held to constitute an admission of the fact that the trees were the property of the defendant."

throughout the belt. If there had been the same positive evidence of trees being cut by the plaintiff, but no evidence of his exclusive right to do so being admitted by persons interested in disputing it if they could, the positive evidence would still have been admissible, but it may be doubted whether it would have been sufficient.

"For it would not have been inconsistent with a concurrent use and enjoyment by other persons."

With this exposition of existing law among ourselves the present history may close.

It will be seen that it deals with an institution widely spread in ancient or modern times in

Melanesia.

Borneo.

India.

Asia Minor, &c.

Turkey in Europe and the Balkan States.

Hibernia.

JUNE 25TH, 1889.

JOHN BEDDOE, Esq., M.D., F.R.S., *President, in the Chair.*

The Minutes of the last meeting were read and signed.

The election of The Right Hon. the Earl of SOUTHBESK, K.T. of Kinnaird, Brechin, N.B.; JOHN ALLEN BROWN, Esq., F.G.S., of 7, Kent Gardens, Ealing; EDWARD ARTHUR DREW, Esq., of Wirksworth, Derbyshire; and FREDERIC JOHN MOUAT, Esq. LL.D., M.D., F.R.C.S., of 12, Durham Villas, Kensington, W., was announced.

The following presents were announced, and thanks voted to the respective donors:—

FOR THE LIBRARY.

From the INDIA OFFICE.—*Epigraphia Indica* and Record of the Archaeological Survey of India. Parts 1, 2.

From the HEMENWAY SOUTH-WESTERN ARCHAEOLOGICAL EXPEDITION—*The Old New World.* By Sylvester Baxter.

From the GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA—*A Grammar of the Kwagiult Language.* By the Rev. Alfred J. Hall.

[1st of 1 resents.

On the occurrence of Palaeolithic Flint Implements
near Igham, Kent, their Distribution
and Age. By Joseph Prestwich, D.C.L.,

at Tribes of the Yukon District and adjacent
British Columbia. By George M. Dawson,

of the Carrying Industry. By Otis T. Mason.
The Ohio Mounds. By Cyrus Thomas.

GENERAL OF STATISTICS, GUATEMALA.—Informe
General de Estadística. 1888.

GESELLSCHAFT FÜR ANTHROPOLOGIE, ETHNOLOGIE
UND ZEITSCHRIFT FÜR ETHNOLOGIE. 1889. Heft

FISH GEOGRAPHICAL SOCIETY.—The Scottish
Fishes. Vol. v. No. 6.

GEOLOGICAL SOCIETY OF WASHINGTON.—The American
Geologist. Vol. ii. No. 2.

—Journal of the East India Association.

—Proceedings of the Canadian Institute. Vol.

—Report of the Canadian Institute. Session, 1887-8.

—Journal of the Royal United Service Insti-

—tute. —Proceeding of the Society of Biblical Archae-
ology. Vol. xi. Part 7.

—Proceedings of the Royal Society. No. 279.

—Proceedings of the Royal Geographical Society. Vol. xi,
No. 6.

—Proceedings of the Asiatic Society of Bengal. 1888. Nos.
9, 10.

—Journal of the Asiatic Society of Bengal. Vol. lvi, Part 2,
No. 5; Vol. lvii, Part 2, No. 4.

—Journal of the Society of Arts. Nos. 1,906-1,909.

—Bulletin de la Société Impériale des Naturalistes de Moscou.
1888. No. 4.

—Boletim da Sociedade de Geographia de Lisboa. 8a Serie.
Nos. 1 e 2.

—Mittheilungen der Anthropologischen Gesellschaft in Wien
cix. Band. 1 und 2 Heft.

—Mittheilungen der Kais.-Königl. Geographischen Gesell-
schaft in Wien. 1888.

—Sechszwanzigster Bericht der Oberhessischen Gesellschaft
für Natur- und Heilkunde.

—The Entomologist. Nature. Nos. 1,023-1,025.

—Science. Nos. 323-325.

—Revue d'Ethnographie. 1889. No. 1.

—Revue d'Ethnographie. 1889. No. 2.

Professor VICTOR HORSLEY, F.R.S., exhibited and described some examples of prehistoric trephining and skull-boring from America.

His Excellency GOVERNOR MOLONEY, C.M.G., exhibited a collection of bows, &c., for the Yoruba country.

EXHIBITION of CROSS-BOWS, LONG-BOWS, QUIVERS, &c., from the YORUBA COUNTRY, by HIS EXCELLENCY GOVERNOR MOLONEY, C.M.G.

IN connection with his exhibits of cross and long-bows, quivers, arrows, messenger's staffs and Dahomian ironware, His Excellency made the following observations:—

On his last visit to England, in 1886, he was invited by Mr. A. W. Franks, C.B., to see the Christy Collection now in the British Museum, Bloomsbury, and his attention was called to an African cross-bow on which at the time he could throw no light. Whether it came from the Upper Nile or from West Africa he could not say; when an opportunity offered he determined to enlighten himself on the subject. The occasion presented itself when, on his reading a current issue of Yoruba proverbs by that dear and interesting old gentleman, the Right Rev. Dr. Crowther, Bishop Crowther, of the Niger, Governor Moloney came across the following:—

Akatanpo kd to ija ijd, ta li o mu igi wa idli oja.

"A cross-bow is not enough to go to war with: whom do you dare to face with a stick."

It so happened the Governor had with him at the time some messengers from the Chiefs of Ibadan, then stationed at their camp at Ekiran in Yoruba, some 250 and 300 miles from the coast line, and by the light thrown upon him through the above quoted proverb, he was able through the kind co-operation of the Chiefs of Ibadan to secure the specimens exhibited. Powder and guns have replaced (more is the pity for the country and for the world) the cross-bow; it is still, however, in use among some Yoruba speaking tribes, as is the long-bow. Where such use continues, it may be concluded that middlemen or intermediate tribes prevent, in self protection or to safeguard monopoly, the import of powder and shot.

The cross and long-bows were accompanied by their leather quivers full of reed or cane arrows. Yoruba bows are made of various kinds of wood very suitable for the purpose, and in the case of the cross-bow, the stock of which was grooved to receive the arrow or dart, the ingenious trigger deserved much attention.

CLASS II.—Exhibition of Bows from Yoruba.

ing of the cross-bow the feet are employed, the bow need therefore. For neither weapon is the arrow only for the long-bow is it tipped, and cleverly designs with iron; in both we find notches for the string, which is made of a piece of bast as removed from twisted native fibre, or deer or buffalo skin. Quivers were of rough hide plugged up with corn

some specimens of the leather industry of the Mohammedan

the long-bow is called in Yoruba *akatanpo*, the long-bow or *ofa*, the arrow for either *ofa*, while the quiver is named *adagbale*, *oro*, or *ebiri*. In Dahomey, which is contiguous with Yoruba on its east side, the bow is *dapo*, *dagbo*, and quiver *go*. Some of the arrows were said to be a practice very generally known in Africa.

the messenger's staff, he exhibited it as a typical of the class of brass and ironwork it represented, and a stage of development in Yoruba. The former was imported in the shape of brass rods, while the latter was secured in the country from native ore such as he placed at the meeting, which he obtained from Ibadan. These take various fantastic and gross forms, and are of varied material. They are entrusted to confidential followers, when live authorities represented thereby communicate with each other or with the Government. They are the *cartes de visite* of the native authorities, the badges of authority and recognition, venerated credentials. The respect and awe extended to these sticks is astounding. They are called *okpa*, and the messengers entrusted with them *okokpa*.

The Dahomian axe, called in the vernacular *asio*, which may be viewed as essentially typical, presented a very advanced stage of ironwork, when were noticed the ingenious and useful chopping and fixing of the blade as well as its exceptional finish. At ordinary times this weapon is carried suspended from its blade from the right shoulder.

DISCUSSION.

The Passmaru re cross-bow was not p
by cross-bowmen

Get
Bowl
that
cup

at the use of the foot in bending the
the Yoruba people: it was practised
in the middle ages.

of that it is how attributed by
was exactly like
which brought
They are

identified together by the peculiar contrivance for releasing the string, which is unlike that of other countries. The cross-bow is also known to be used on the coast of the Bight of Benin. Its use, he thought, could not be traced to the east coast of Africa, although Grant mentions that the children at Ukuni make toy cross-bows, which may perhaps be taken to imply that it was at one time used there. He was not aware that the cross-bow was used in India, but it was used in the Nicobar Islands, and by the Kairens, on the Martaban coast of Pegu, and in Assam; also by the Stiens of Cambodia and in Burmah. It is used in Japan and in China. The cross-bow on the west coast of Africa must therefore be either an independent invention, or be derived from European cross-bows of the middle ages.

The following Paper was read by the Author:—

ON POISONED ARROWS in MELANESIA.

By the Rev. R. H. CODRINGTON, D.D.

POISONED arrows are used in the Solomon Islands, Santa Cruz, the Banks Islands, the New Hebrides. In parts of the Solomon Islands, and in parts of the New Hebrides the common fighting weapon is the spear; but the use of the bow and poisoned arrow is occasional. In the Torres Islands, and in Lepers' Island in the New Hebrides, arrows are used for fighting which are not poisoned, yet belong entirely to the same class of weapons with those that are. When the word poison is used it is necessary to understand in what sense it is applied. The practice of administering poison in food was certainly common among the natives. I very much doubt, however, whether what was used had ever more than a very little power of doing harm; whether anything used was poisonous in a proper sense of the word, before returning "labourers" from Queensland brought back arsenic with them. Certainly the deadly effect of what was administered was looked for to follow upon the power of the incantations with which the poison was prepared. In the same way the deadly quality of these arrows was never thought by the natives to be due to poison in our use of the word, though what was used might be, and was meant to be, injurious and active in inflaming wound; it was the supernatural power that belonged to the human bone of which the head was made on which they chiefly relied, and with that the magical power of the incantations with which the head was fastened to the shaft. Hence the "

On Poisoned Arrows: Melanesia.

which have no poison, were as
the others; and in Lepers

fired about these arrows in the Banks
from Santa Maria in that
the materially from those made in the
or from the very formidable weapons
In construction and in the
position they are identical, though different

texture of all the arrows which have the
either poisoned or not. There is the
of hard wood (tree-fern or palm); and
it let into the other, and firmly
This is well seen in one of the
Islands.

in size and weight. Santa Cruz
four feet long, and weigh about two
arrows are about 3 feet 9 inches in
ounce. The Torres Island arrows
long, and weigh three-quarters of an
a Santa Cruz arrow is 7 inches long,
hard wood, which is curiously carved and
long. The bone head of a Torres Island
long, and the foreshaft 8 inches, the reed
The one is a heavy and powerful weapon
large and powerful bow, and is by far the most for-
midable of the kind; the other is slight and weak, little
the human bone fitted for the bow.

high in native opinion gives to the
the of any dead man will do, because
to work on the wounded man; but
powerful when alive is more valued.

ago, a young man out of affection
up his bones and made them into
about with him, and did not speak of
two, his brother and himself, and
the supernatural power of the dead
In Melanesia the story is that a blind
these deadly arrows, in time of war
the heads of bird
recovered, all the
the came
ed and
This

brother of a friend of mine; when a quarrel arises it is enough to bring that out and point it at the disturbers of peace.

It is the human bone which gives the deadly quality to the arrow; but yet the bone must be made into an arrow with the use of certain incantations which add supernatural power, *mana*, as it is most commonly called. The maker sings or mutters this charm as he ties the bone to the foreshaft; and hence I have been told that the supernatural power is put in where the bone joins the foreshaft. The knowledge of the incantation is confined to few; but still if a man should, like that young man at Oba, make his arrows from the bones of some one he knew, and call on the ghost, as he would be sure to do, in binding on the head, no doubt his arrows would be effective.

The poison is an addition to the power of the bone; the magical efficacy of the poison is added to the supernatural power residing in a dead man's bone. The native did not much consider, if at all, the natural power to hurt of either bone or poison. A fine point of bone breaking off deep in a wound must be most dangerous; pungent and burning juices smeared on the arrow-head may well inflame a wound. It was not, however, to natural effects that the native looked at all. A dead man's bone made the wound, the power of the ghost was brought by incantation to the arrow, therefore the wounded man would die. Euphorbia juice is hot and burning; it is smeared on the bone with an incantation which calls in the power of a dead man's ghost; when the wound is given the ghost will make it inflame.

The cure of the wounded man is conducted on the same principle. If the arrow-head, or a part of it, can be recovered, it is kept in a damp place or cool leaves; the inflammation of the wound is little, or subsides. Shells are kept rattling over the house where the wounded man lies to keep off the hostile ghost. In the same way the enemy who has inflicted the wound has by no means done all that he can do. He and his friends will drink hot and burning juices, and chew irritating leaves; pungent and bitter herbs will be burnt to make an irritating smoke, and will be tied upon the bow that sent the arrow; the arrow-head, if recovered, will be put into the fire. The bow will be kept near the fire, its string kept taut, and occasionally pulled, to bring on tension of the nerves and the spasms of tetanus.

I will now describe the preparation of the poisoned arrows as it has been described to me, for I have never seen the thing done. Here is an account of it written by a native of Maewo-Aurora, in the New Hebrides:—"When they have dug up a dead man's bone they break it into splinters and cut it properly into shape, and sit down and rub it on a stone of brain coral with water. After that it is fixed into a bit of tree-fern wood; every-

that, it is some one who knows. When that is juice of the *no-to* (*coccinaria ugallocha*) is put in a cool place on the side wall of a fire is made there so that the cold may strike turn like mould. Then they dig up the root *to*, and come back and take off the bark fibre into a leaf; and that, wrapped in on the fire. When it is cooked, this is on the spathe of a cocoanut, and squeezed a tree. Then, with a piece of stick, they f bone to help the *toto*. After this it is and swells up in lumps, which as it in. Then it is fastened to the reed, and string. After that they take a green l in one spot, and paint it over. When take it to the beach and dip it into the hard: then the *toto* is finished."

ring island of Whitsuntide they finish with the on the shore, and thought to be the dung thought to have much magic power.

Banks Islands, the poison is made from the plant, *loti*, cooked over the fire with the root

This mixture is black and thick, and is smeared

bits of human bone, which are put in the sun to dry,

it then kept five days indoors, wrapped up, when the stuff turns white. Another poison which causes more inflammation and acts more quickly is got from the *toi*, an euphorbia.

At Santa Cruz the foreshaft is of palm wood, carved with shark's tooth or shell. The bone head is covered with ashes and with the preparation which gives supernatural power. The shaft is bound at intervals with a string of fibre, which is covered with the same substance which covers the bone point.

binding is done with incantations which qualities on the arrow.

of a wound with these arrows is certain it is expected. Even if, however, the seed, some kind of strychnine, that is so. After the lamented death of On Messer, R.N., clearly established, I be

comparative harmless as the so-called For my own part, I am only desirous to see of the matter, which is quite

is known that

early traders' inquiries. The native meant that the bone was human, and the deadly power of the weapon derived from ghosts. The European thinking of poison, not of magic, supposed that the poison was from a corpse.

In conclusion, let me call attention to the beautiful and elaborate ornamentation of the shaft from the Banks' Islands. This was executed with obsidian in Santa Maria, where certain men used in former days to make their livelihood by their art. This shaft adds some illustration to Mr. Balfour's paper read in January, 1888.

DISCUSSION.

The PRESIDENT thought Dr. Codrington's description of the preparation and properties of the arrows was extremely clear: it explained the uncertain but often very formidable results of wounds inflicted with these arrows.

Prof. VICTOR HORSLEY wished only to suggest that possibly the original value of the human bone tipping the arrow was first made evident by the employment of bone from a corpse recently dead, and in the decomposing tissues of which consequently the septicæmic virus would be flourishing. He also referred to the case published recently in the "British Medical Journal" by Mr. White, of Nottingham, in which a servant maid wounded herself with a poisoned arrow from a trophy, the symptoms being those of curare poisoning, and successfully treated as such.

His Excellency GOVERNOR MOLONEY remarked that he felt sure he was only expressing the general view of the meeting when he said that the paper which had just been read was one of importance and considerable interest. It might, however, be inferred therefrom that aborigines knew nothing of the use of poison for arrow tips until they were so instructed by aliens, who also had been the channel of supply of the necessary commodity.

Speaking of the African Continent, this was not his experience; the practice seemed extensively known. At the Gambia among the Mandingoes, who still employed the bow, the use of vegetable poison from a *Strophanthus* for arrow tips was general, and he would say the same of Yoruba, whence he had succeeded in bringing home to the Royal Gardens, Kew, living specimens of what is considered a new species of *Strophanthus*, which yields a poison used much for a similar purpose. The *umtsuti*, or poison plant of South Africa, is *Strophanthus hispidus*, and *wenika*, an arrow poison of the East Coast, is said to be from the root of the same. Again, we must remember the *hippo*, *kombé*, and *sakamba* arrow poisons. Finally, we have heard or read of the *Inée*, or *Onaye*, of Gaboon, a *Strophanthus* poison used to a like end. Doubtless there were many other poison-yielding plants known in use by the natives of Africa.

was read by the Secretary:—

Row

ZS.

[SEE PLATES V AND VI.]

been paid to the history of the
s, who, in his catalogue of his
ublished in 1877, has given an
this weapon, the result of very
investigated

g first pointed out the necessity
Bow into two principal groups
r" and the "Composite Bow"
tered, moreover, very fully into
d distribution of the varieties
Composite Bow," the offspring of
f the "Plain Bow," in regions
latter were not available. The
e of this subject in the Pitt
d to the University of Oxford,
in working at this series during
on in the Oxford Museum, I

to further the structure and affinities

is nature.

writings of General Pitt Rivers very little
ritten to describe the *complex structural*
types of the composite bow, and that
een able to ascertain, is for the most
and superficial.¹ This is all the more
r that this species of bow has been in
pecialized form for a very considerable
ioned by countless writers, both ancient

has a very complete account of the arrow-making
Report of Smithsonian Institute, 1884, p. 11.
has, however, "Bow of America," and W.
(1878), give general accounts of bows, but their

in the
the
mark
that
that

and modern. As regards its powers and the skill of Asiatic archers much has been written, and its eulogy has been uttered in the most extravagant terms, and with this I do not purpose to deal, but merely propose to confine myself to a description of the details of the anatomy of the higher types, with mention of some of the more primitive types for comparison, and of some forms allied to the composite bow. I recently had passed on to me by Dr. Tylor the half of a broken Persian bow, of excellent workmanship, and probably of considerable age (perhaps 200 years), which was sent to Oxford with other Persian weapons by Colonel Sir R. Murdoch Smith. This I cut into sections for the purpose of displaying its structure, described below, and this led me to investigate the anatomy of one or two other allied forms by way of comparison.

Before commencing a description of the structure of the more highly specialized forms, it may be well briefly to mention a few points in connection with those forms which shew a more primitive construction, and which may be taken as illustrating, to some extent at least, the stages in the evolution of the highly complex types which complete the series. The distribution of the composite bow is too well known from General Pitt Rivers' writings to need examination here. The more prominent types are those of the Eastern and Western Esquimaux, of some races of North-West America, and the Tatar and Persian forms, there being various offshoots from each of these forms.

In the more northerly regions of Central Asia (where, as pointed out by General Pitt Rivers, it seems likely that, from the lack of suitable wood for long-bow making, the use of a combination of materials for producing bows on the model of the older "self" bow originated), the earlier and more primitive forms have died out. We have therefore to seek elsewhere, in the more barren regions into which this form of bow has extended, for the primitive types which may serve to illustrate the struggles of the early bowyers in their attempts to produce a serviceable weapon.

The most primitive type now existing is that found among the Eastern Esquimaux, consisting of a piece of drift-wood (or two or more pieces of wood, whale-rib, or horn spliced together) "backed" with a cord of plaited or twisted sinews, which is fixed by an eye-loop to one of the nocks of the bow, and is wound up and down between the nocks, passing round them. A bundle of cords is thus formed, stretched tightly between the ends of the bow, and to a great extent covering the "back." Sir Martin Frobisher described this form of sinew backing as

¹ Ammichin mentions the following materials as added to the wood sometimes—Whalebone, stag (? cariboo) horn, musk ox horn, or walrus tooth.

d to, but fast girded on." Sometimes, even in the perimeters, the longitudinal lacing is gathered up into rope by spiral binding. There are further cross lacing round the body of the bow and the backing, so the latter close against the former.

now from the Barrow collection in the British Museum

Fish Island (?) is backed with a lacing of raw hide, & two bundles twisted up, with a cross lacing of the

second in the British Museum from Parker
d. consists of roughly spliced bones reinforced
short whalebone (baleen) strips. Crantz also
erial as used for backing Greenland bows. 1

Fig. 1) a bow of this simple type

Eastern Esquimaux by Captain Lyon, R.N.,

In this specimen the body is of a single piece of
and clumsy; the tension of the sinew backing

cases, causes the boy to assume the opposite

is weapon when strung for use. It frequently

bows of the Eastern Esquimaux assume a very

shape from the rough splicing and the unequal

of the parts.

as the body is composed of more than one piece of bone, pieces may be united by being overlapped and fixed with new things passed through holes, or with rivets of old ships' nails, or by splicing. In the latter case the joints are often strengthened by additional short pieces placed on back and front, with a splicing line bound round the whole.

The Esquimaux bows have been so well described in detail by Mr. John Murdoch¹ that I need not enter into the details of the various modes of "backing" characteristic of the different regions of Arctic North America, my purpose being merely to

the prominent types which seem to indicate the various

n the history of this weapon. Mr. Murdoch refers his

all-defined western types to a single primitive ancestral

which the bows of the Eastern Esquimaux with simple

such as that described above, are but slightly modified

s. He cites as an example a bow from Cumberland Gulf.

very primitive construction.

In the western regions of the Esquimaux, where the materials

e of better quality, and the workmanship far superior, owing

...doubt to the ready access to the higher civilization of the

and in the proximity to the Asiatic Continent, the style of

The grass facing round the wood

usually is usually more a short: organic ally in the

Finally, it is fully and completely, as in the
 British Patent No. 23, obtained by C. J. ... in 1826.

... ..

of the Composite Bow.

to the N.E. of Icy Cape, forming a close transverse binding over the greater length of the bow, the central grip and two extremities alone remaining free. By this means the longitudinal cords are brought into close contact with the wood, and the whole becomes stronger and far more compact. The backing is wound between the nocks as in the eastern forms, but the strands are gathered up closely to form a compact rope-like bundle, kept close against the body by the transverse binding, except at the ends where the strands are more free and less compactly packed. Generally the sinews are twisted together into a single or double rope by means of small ivory levers.

Many of the Western Esquimaux bows appear not to be of drift wood, but of wood of better quality, though Beechey describes bows from Kotzebue Sound as being of drift pine. He, however, mentions bags of resin "which appeared to be the natural exudation of the pine. From their constantly chewing it, it did not seem difficult to be had." In all probability they have fairly easy access to living trees, and frequently make their bows of the live wood.

Many bows from the western regions of North America have strips of horn, or ivory, or whalebone between the backing and the "body," and occasionally strips of hide are added; the backing is moreover frequently tightened by the insertion of small plugs. The wood is often painted over with various designs, and these bows also often exhibit the shape characterised as the "Tatar" shape, of which the specimen figured (Plate V, Fig. 2) is a good example. The two ends are bent suddenly away from the general line and are straight; the angles or "elbows" being emphasized in the unstrung state.

The close cross binding occurs most frequently at the "elbows," which, when the bow is strung, have to withstand a somewhat severe strain; but, as seen above, in many cases extends more or less towards the central "grip."

The "Tatar" shape is doubtless derived directly from the Asiatic Continent, ready access being afforded by the narrow Behring's Straits. It extends certainly as far as Hudson Straits. Capt. Beechey mentions¹ the close resemblance between bows of St. Lawrence Island, Behring's Straits, and those of the Tehuktschi. He lays stress upon the many points in common to be observed in the two races. Capt. Belcher² also points out the connection between the peoples of Arctic Asia and America. He says, "The bows of the Esquimaux are either in one single piece steamed to form, or at times composed of three pieces of

¹ "Narrative of a Voyage to the Pacific and Behring's Straits," 1831, p. 242.

² "a. Ethnol. Soc.," Vol. i, 1861, p. 129.

drift wood, and it has always appeared to me that their object has been to produce a form very similar to the strung bow of Tartars, and *totally dissimilar* to the tribes of Indians on the American shores southerly." Dr. King, in his description of the esquimaux, writes,¹ "The Esquimaux of Behring's Straits bestow care in giving the bow the proper form, and for this purpose they wrap it in shavings soaked in water, and hold it over a fire for a time; it is then pegged to the earth in the form required. By the assistance of the sinews at the back the bow preserves its elastic power, and by slackening or tightening it is rendered weak enough for the child or strong enough for the most powerful man, and when fast girded it causes the implement, when unstrung, to turn the wrong way. They have also the power of altering the length of their bowstring to their pleasure by twisting the several strings, often 15 or 20 plaits, of which it is composed. Some of the warlike tribes of Behring's Straits muffle with fur the horns of their bows to deaden the noise of the string against them."

To enumerate the several Esquimaux varieties of what I should propose to call "free" sinew backing (as opposed to the backing of sinews *moulded* on to the wood or horn, which may for convenience be called "close" backing), would be merely to repeat the substance of Mr. Murdoch's paper; and I shall here leave this form and pass to a very distinct type, which may well be regarded as a survival of an early form in the direct line which has led to the perfected Asiatic bows. The peculiarity of this type, which is distributed over a fairly wide area of North-West America, is that, instead of the sinew backing being composed of plaited sinew cords, kept close to the bow by means of cross binding of similar material, it consists of a *mass* of sinews² taken from the back or neck of some animal; not divided up into strands or cords, but moistened and then moulded in layers directly on to the surface of the bow, so that the whole forms a very compact weapon, the composite structure being far less obvious than in esquimaux bows with "free" backing. In making these bows, as

E. Belcher tells us, the wet layers of sinew are applied so as entirely encase the wood. The horns of the bow are also added entirely from it, and when dry, it presents the unobtrusive features of a single piece of wood. The face of the bow is then polished off to a smooth surface. The bows are preserved in a dry place, at moisture reaching to the point of being diminished.

Catlin¹ gives an interesting description of the bows of the Blackfoot tribe (between the Missouri and the Yellowstone, about 34° W, 41° N.), which I quote in his own words: "The length of these bows is about three feet, and sometimes not more than two and a half. They have, no doubt, studied to get the requisite power in the smallest compass possible, as it is more easily and handily used on horseback than one of greater length. The greater number of these bows are made of ash, or of 'bois d'arc' (as the French call it), and lined on the back with buffalo or deer's sinews, which are inseparably attached to them, and give them great elasticity. There are very many also (amongst the Blackfeet and the Crows) which are made of bone, and others of the horns of the mountain-sheep. Those made of bone are decidedly the most valuable, and cannot in this country be procured of a good quality short of the price of one or two horses.

The bone of which they are made is certainly not the bone of any animal now grazing on the prairies, or in the mountains between this place and the Pacific Ocean; for some of these bows are three feet in length, of a solid piece of bone, and that as close-grained, as hard, as white, and as highly polished as any ivory. . . . It is my opinion, therefore, that the Indians on the Pacific Coast procure the bone from the jaw of the sperm whale, which is often stranded on that coast, and, bringing the bone into the mountains, trade it to the Blackfeet and Crows, who manufacture it into these bows without knowing any more than we do, from what source it has been procured."

I have figured (Plate V, Fig. 3) a good example of this kind of bow, which was obtained by Capt. Belcher in California, now in the Pitt Rivers collection. In some of the bows of this type the sinew layer is moulded on the back from end to end and bound round at the ends with sinew strands, and sometimes porcupine quills in addition, to prevent its coming away from the surface of the bow; but in others, as, *e.g.*, the Californian bow figured, an advance on this is observed in the sinew layer being moulded so as to enclose completely the last inch or so of both ends, thus doing away with the necessity for binding at the extremities. In these latter forms the sinew extends beyond the ends of the wood or horn body of the bow, and forms solid tips, which are so moulded as to form the nocks. Nearly all are bound round at the centre with thongs of hide, or other material, for the hand grip. In order to give a firm hold to the sinew, the surface of the "back" of these bows is scored over with deep scratches, so as to present a rough surface. A marked recurved outline in the unstrung state is frequently exhibited, from the tension of

¹ "North American Indians," fifth edition, 1845, p. 32.

as will be seen from the figure, the curve in this being of a very regular C shape.

Kind of backing must have proved a distinct advance presumably older system of "free" backing. This weapon appears to have been especially in use on horseback, as it has been favoured particularly by horse-riding tribes. It is moreover the form which has worked up to the state of greatest perfection on the Asiatic continent. The sinew backing is sometimes reddened, sometimes skinned, or it may be left of its natural colour, as in the one used. The Ossage and Modoc tribes and many others used is bow, and General Pitt Rivers has stated his belief that occasionally it is used as far south as Peru.¹

Of the Esquimaux and North-West American bows, I have described three prominent varieties:—1. That of the Eastern Esquimaux, with its simple backing laced from end to end, roughly presenting a very primitive structure; 2. That of the Esquimaux, shewing well-made examples; the backing laced sinew laced between the ends, with, in addition, a less complicated system of cross lacing, many of the being painted, though in none is the sinew backing concealed beneath an ornamental covering; the shape frequently showing the influence of the proximity to the Asiatic Continent, appearance of the "Tatar" outline; 3. The North-West American form, in which the sinew is moulded closely on to the face of the bow, and is sometimes painted over, these bows being usually short and very compact.

In the higher forms we must turn to the Asiatic Continent, where I will again only describe the more prominent varieties characteristic of different regions, without going into the details of the numerous subvarieties more than necessary.

The descriptions of bows by the early classic writers are more or less vague, and no mention, so far as I know, is made of sinew backing, though from the accounts of the shapes of many varieties, there is little doubt that this kind of reinforcement was in vogue at a very early period. In the *Iliad* the bow of the Lycians is described as being made of goat's horn, and the mention of other varieties is made. At the same time, the bow of the Persians is described as being made of wood, and the bow of the Greeks as being made of wood, and the bow of the Romans as being made of wood.

a bow, is more easily explained by supposing that those from which Homer drew his description were of composite structure, with a powerful reinforcement of sinews moulded on to the back and probably concealed by an ornamental layer of some kind. In the higher forms of composite bow, one of the chief characteristics is the artful concealment of their composite structure beneath coats of bark and lacquer. From the expression, *νευρή*, we gather that the bow-string was of sinew, and we also learn that the bow of Odysseus was carefully kept in an ornamental case,¹ after the fashion of Asiatic archers using the composite bow. The few examples of bows composed of horn alone, existing at the present day, do not appear to be of very exceptional power, and certainly not of sufficient strength to resist the efforts of men trained to the use of this weapon, as were the suitors of Penelope.

There is no doubt that the Parthian, Dacian, and Scythian bows of antiquity were "composite" bows of somewhat similar structure to those of modern Persia or China, as we have evidence that the Persians derived the bow, which they afterwards brought to such perfection, from the Scythians. According to Rich² the Scythian bow was shaped in two bays, one smaller than the other, and resembling the early Greek Sigma Σ . Hercules is figured carrying an unequally curved bow of this kind, possibly representing the one which he obtained from Teuteras, a Scythian shepherd, as opposed to that which he received from Apollo, which was necessarily a "Greek" one, and symmetrical. The Scythian bow as usually represented is symmetrical and, in the unstrung state, regularly curved in a \sim shape, resembling the type most characteristic of modern Persia. The unequally curved bows may have been so made for the purpose of enabling the archer to draw the arrow in a line from the exact centre, or the bows may have been distorted in the representation.

To return to the bows of modern times.

Amongst the Chukches of Easternmost Siberia, as one would expect from the proximity to the shores of Alaska, the form of the bow bears a strong similarity to that of those of the Western Esquimaux. It appears from the narrative of the Vega Expedition that the modern Chukch bows are very degenerate and of inferior manufacture, though the older bows were of finer make. These were larger and made with greater care, "covered with birch bark and strengthened by an artistic plaiting of

¹ *δὲν τὴν γαστήρ, ὅς οἱ περιέστρο φάσκετο.*
Odyssey, xii, 53.

² Dictionary of "Roman and Greek Antiquities."

on the outer side." This birch bark covering is a Asiatic characteristic, whereas the *plaited* sinew reinforcement is chiefly peculiar to North America. Further west, among the Tatars, the bows shew a close relationship to the Tatar bow described below, both in general outline and in structure. The Tatar bow in the British Museum, of markedly "Tatar" type, is mainly built up of wood, a double layer running along the "arms," with a fairly thick reinforcement of sinew moulded closely along the back as far as the commencement of the straight

The "backing" is entirely covered with thick birch bark, scored over with ornamental grooves and scratches. The "ears" are short and of solid pieces of wood, with small bone wedges let into the ends, to give strength to the nocks, which, oddly enough, are in this specimen situated at the extreme ends, and not just below the ends, as in most bows. The ridges below the "ears," so characteristic of the higher Southern forms, are here only slightly marked, the "ears" thickening rather suddenly. The "grip" is of wood, covered with birch bark, and bound at the centre with hide thongs. The belly is composed of a strip of horn along each "arm" reaching to the bases of the "ears," almost entirely exposed, except for a slight overlapping of bark round the edges. The horn is very thin indeed, and can hardly have been of great service in increasing the strength and elasticity of the weapon, and was probably added to this bow more for the purpose of carrying out the "Tatar" design, in spite of scarcity of suitable material, than for real use. The edges of this bow are finished off with bone strips, and there are bone bridges at the "elbows" for the bow-string.

A second Siberian bow in the British Museum is from the Bashkirs, a nomadic tribe in the Ural district, in the govern-

For convenience, I may here explain the terminology used:—

Back = The side which in most of these bows is concave when unstrung, becoming convex when strung.

Belly = The side opposite to the back, which is nearest to the archer when shooting.

Arms = The flexible portions lying between the central "grip" and the right extremities.

Shoulders = The points where the bow suddenly narrows laterally to form the arms.

Ears = The inflexions beyond the arms, at the end of which are all formed the "horns," but in dealing with the bow an obvious confusion is

often a common in the ly with yellow

ment of Orenburg. This specimen exhibits the so-called "Cupid's bow" shape very strongly. It is roughly made. The wooden base is fairly thick along the "arms"; the sinew backing is powerful and covered with thick birch bark; the "back" is slightly concave in cross section, and the "belly" very convex. The horn layer on the "belly" is thicker than in the preceding specimen, but is thinned down towards the "ears"; it is entirely exposed, except at the "grip." The ridges below the "ears" are fairly marked and apparently shaped in the wood, and not by moulding the sinew; the "ears" short, with partial covering of bark, wound spirally round them; and the nocks are just below the extremities. At two points on the arms there are supplemental transverse bindings to keep the horn strips in place, but these have evidently been added since the bow was finished, and are for mending rather than part of the necessary structure. There are bridges at the elbows for the bow-string.

A bow described by Erman deserves mention here¹: "A very powerful bow, also made of fir, is in use by the natives dwelling on the Northern Obi, and is stated to be the peculiar manufacture of the Kasuimski. The bow is strengthened by thin slices of the horn of the fossil rhinoceros, *R. tichorhinus*, very neatly joined to the fir by fish glue, and requires great dexterity to bend it fully. The Kasuimski are inhabitants of the banks of the Rivers Kas and Suim." It is possible that fossil horn has been frequently used as a substitute for the more serviceable buffalo horn of the higher types.

Turning now to the bow known as the "Tatar" bow, which has given rise to the so-called "Kung"² bow of China, an advanced type is reached, and better workmanship displayed, than in any of the preceding examples. The backward curve when unstrung, and the "Cupid's bow" shape when strung, are strongly marked in this type. Externally it shows a thick and strong rounded layer of black horn lying along the belly, completely uncovered and extending to the base of the "ears." Each "arm" has a single piece of horn. The "ears" are bent down sharply at the "elbows," and are nearly straight; at the extremity of each a wedge of horn may be let in to strengthen the nocks, and the actual tip beyond the nocks may be entirely

¹ Quoted from Richardson's "Polar Regions," p. 308.

² These two rivers flow into the Yenesei in about latitude 60° N.

³ "Kung," 弓 in Chinese, means any kind of bow, so that it cannot be used as an adjective to describe this particular form of bow. The word Nu, a cross-bow, becomes when written 弩, which is a combination of a phonetic character sounded Nu, and the radical Kung, which has been added in order to express the thing visibly, as meaning a bow of some sort.

I am indebted to Mr. F. H. Balfour for the above note.

bow, but in the commoner examples the occasional and desirability of this addition is indicated by painted black beyond the nocks, thus giving the appearance of being covered with birch bark, applied in rhomboidal pieces, giving the appearance of a spiral winding. The bark ends as far as do the backing sinews, and completely conceals them. In the commoner specimens the bark is left in its natural state, but in finer examples, and especially in the better inner bows, it is covered wholly or partially with paint and with elaborate designs in thin cardboard stuck on to the surface and varnished over. Along the edges run narrow strips of horn or cane, which conceal much of the inner structure. The central grip is usually bound round transversely with sinews and in the better examples covered with thin cork or leather. The ridges are always well marked. The nocks are occasionally as extreme tips as in the Tungus bow above. I dissected one of these bows, of the rather commoner sort, in order to show the structure more in detail. Plate VI, Figs. 4-8, refer to this bow, and the description may, I think, be taken as fairly characteristic of all bows of this type.

Fig. 4 shows a transverse section through the middle of one of the "arms." Along the centre runs a flat piece of cane (a^1) of the same width nearly as the "arms"; to this, on the belly, is neatly and firmly glued a thick piece of horn (b), flat on the inner and convex on the outer side. On the back there lies firstly a layer of sinews (c^1), longitudinally disposed, partly mixed with glue, and adhering very closely to the cane; over this is a second layer (c^2) of mixed sinews and glue, the proportion of glue being greater in this than in the lower layer. These two layers are turned round the cane so as just to meet the horn at the sides, and here are seen the two thin strips of horn ($d-d'$) which conceal externally the point of juncture of the several component materials. Over the second stratum of sinew is a layer (e) of fine, delicate inner bark of birch, overlying which is the external layer of coarser bark. The region at which this section has been cut is that where the greatest flexibility is required, and where the bow is flattest and widest, though in the width does not vary greatly along the "arms."

Fig. 5 is taken from the same part showing the structure after the outer layer of bark has been removed. The letters

shades off into the "ear." In the section it is seen that the cane is replaced by hard wood (a^2) with a triangular cross section which produces the shape of the ridge. Over the "belly" side lies the horn, very thin at this point; it terminates a little way beyond this point. On the back are seen the continuations of the two sinew layers c^1 , c^2 . The external bark layers are the same as before.

In Fig. 7 is seen a transverse section through the centre of the handle or "grip." Here the centre is composed of both cane and hardwood; the cane a^1 is in direct continuation from the "arms"; the hardwood serves to pad out the handle in order to fit the grip comfortably. The horn, b , is very convex here, and this section cuts through the point of meeting of the two horn strips, which together cover the belly as far as the "elbows"; so that here the end of one of the pieces is represented. The longitudinal sinews are disposed as before. The bark does not extend over the handle, but, as mentioned above, in its place there are coarse sinews, g , wound transversely round in a slightly spiral manner, the ends of which are seen cut across in the section. In the more elaborate specimens there is a layer of shark skin, covering the grip, with thin cork overlying the whole, and affording a good hand-hold.

Fig. 8 is taken from a longitudinal section through the whole of the grip, and shows on a reduced scale the extent and form of the plug of hardwood, a^2 , and how it ekes out the shape of the hand-hold; the meeting of the two horn strips, b , b , is also seen.

The specimen from which the above description is taken is by no means a fine specimen of its kind, but may be taken as fairly typical of the "Tatar" variety, as the different examples seem to vary more in external finish than in internal structure.

The figures of the complete Persian bow (Plate VI, Fig. 9), and the anatomy of another specimen (Figs. 10-16) are taken from specimens sent to the Oxford Museum, by Colonel Sir R. Murdoch Smith. The two specimens are exactly similar, so that the description of the structure of the one may be taken as applying to that of the other, which is figured entire.

These specimens are estimated by Colonel Murdoch Smith to be certainly 200 years old, and are very good examples of the highest type of composite bow. It is highly improbable that this weapon will ever improve, with the increasing use of fire-arms in Asia, and we are justified in regarding this as the culminating point in the series.

In shape this bow (Fig. 9) differs from the "Tatar" bow; the strung curve is more regular and resembles that of the Egyptian bow as generally described, and the "ears," which are much shorter, continue in the same curve with the

not bare, but overlaid with sinew
also, as compared with the
are proportionately flatter, wider at the centre,
ed towards the "ears" and "grip"; and they are
kedly plano-convex in section. The specimen
recurving in the unstrung state, to
any examples, in some of which the tips actually

is ascended the tendency to conceal the
beneath an external coat, and thus to give an
appearance to the bow, becomes increased. We
infancy in the Siberian bows with their plain
ornamented bark covering, lying over the sinew
er in the scale this coating, which at first
a purely useful purpose, as a protection
of weather, becomes more and more a vehicle
ment of ornamental art, at the same time
tent, till the maximum is reached in bows of
in which usually the elaborate structure is
by a coat of lacquer, upon which frequently
is lavished in floral designs and scroll work
in gold. All composite bows appear to require soak-
r to produce their maximum effect, and possibly this
coat, besides protecting the sinews from injury, was
ded primarily to prevent rapid change in the condition of
ow, and especially the sinew and glue, from changes in
emperature, and to protect them from the sun's rays.
darily, it was found to be a convenient ground upon
which to lay the varnish and paint which give the finishing
ches. I do not know the composition of the lacquer used,
it must doubtless be of a very special nature not to crack all
r when the bow is bent.

The specimens figured are, as appears to be usually the case
with the Persian bows, entirely covered with the lacquer coat,
nedges of the arms, where the side strips of horn app
ce, as in most specimens where they occur at all.

(Fig. 10) taken transversely across the centre of arm
a, at once exhibits a marked difference from
ng section in the later bow (Fig. 4). It is seen

(a, a) is composed of
and in width and

ly a coloured wood in two
r b of this is much scored
d the glue and sinew
rips of horn (b, b)
the wood and

layer of transversely disposed sinews mixed with glue, extending from side to side, and apparently to assist in keeping together the numerous strips. This does not occur in the "Tatar" bow. The back is covered with a thick layer (*e*) of longitudinal sinews, slightly mixed with glue, the layer being well coated on the outside with glue, the surface of which is smoothed and polished. The sinew layer appears to be single and not in two strata, as in the "Tatar" bow. Overlying both belly and back is a layer of the finest inner bark of the birch, very delicate, and applied in rhomboidal pieces, as before described (there is no layer of coarser bark), and immediately upon this lies the external coat of lacquer. At the edges the strips of horn (*d, d*) are exposed and break the seemingly spiral winding of the bark, which is only apparent, as the edges of the pieces on the back and belly do not correspond.

Fig. 11, Plate VI, is taken from a dissection of the belly side of this part, shewing the successive strata—the horn strips (*b, b*); the external side strips (*d, d*); the transverse sinews (*k*); the bark layer (*e, e*), shewing portions of two pieces; the external lacquer (*l*), which replaces the bark coat (*f*), of the "Tatar" bow. A dissection of the back is shown in Fig. 12, where *c* represents the sinew reinforcement, and *c'* the external surface of this, coated with smooth polished glue.

Fig. 13 shews a transverse section through the middle of the ridge at the commencement of the terminal "ear," corresponding to Fig. 6. The number of horn strips is smaller than at the centre of the arm, shewing that these do not all run the whole length of the arms; the horn ends abruptly at the commencement of the "ears," about three inches beyond the point at which this section is taken. It is also seen that in the Persian bow the wood base enters less into the formation of the ridge than is the case in the "Tatar" form; the ridge is here almost entirely moulded up from the sinew mass.

A transverse section (Fig. 14) through one of the "ears" shows the hardwood base split up into four pieces, *a, a, a, a*. The two smaller pieces commence at the point where the horn ends, and take its place. A new element appears in a flat piece of horn *m*, running down the centre, at right angles to the faces of the bow. This is a thin horn wedge, thickest at the extremity beyond the nock, to which it gives support. It resembles the similar piece in a Chinese bow in its use, but differs in its traversing the whole length of the "ear," and in never entirely forming the extreme tip beyond the nock. The longitudinal sinews, *c, c*, surrounding the "ear" are in continuation of the longitudinal backing sinews, which are here brought round in completely encasing the wood, being only separated

other by the edges of the thin horn wedge, which are really. Below the neck is a band of transverse sinews, — elements composing the "ear." There is a layer of bark over the "ears," the lacquer and gilt being directly to the sinew.

Fig. 15 is taken from a transverse section through the centre of the handle or grip, corresponding to Fig. 7: a^1 and a^2 are two pieces of hardwood forming the base, the smaller piece being inserted to pad out the grip and to give it a rounded form; the two are glued together. The number of horn strips which reach this point is reduced to four, as this portion is narrowed considerably. This section does not cut through the point of sets of horn strips, for, as will be seen from Fig. 16, the point is not exactly at the centre in this section, but extends nearly round the grip, portion where lie the horn strips, overlying a mass of transverse sinews, as elsewhere. The sides, from the sinew mass, as it is in the handle, covering entirely surrounds this part, but do not extend along the grip.

A section through the grip (Fig. 16), is seen the small pad of hardwood, a^2 , and the meeting of two sets of horn strips, between the ends of which is inserted a thin strip of wood. The principal piece of wood in Fig. 16, continues in either direction a short distance along the handle in the form of a wedge, pushing its way between the sets which form the centre of the arms, which are represented in Fig. 10, a , a .

The figure of the perfect Persian bow the points at which transverse sections have been cut are indicated with dotted

Hazard in his "Book of Archery," quoting Thevenot, says "Oriental bowyers use a peculiar kind of glue, made from a root called in Turkey 'Sherischoan,' which they grind like between two stones, until it resembles sawdust." It is certainly a most effective kind of glue, as it does not appear with use, though it sets very firmly; it is also very

Murdoch Smith says of these bows that, after the maker's hands, in order to be strong for use, they have been soaked in a bath, and then gradually opened by a force in the same

own are of which time

The specimen of an Indian bow which I have dissected and figured (Figs. 17-21, Plate V) is very strongly recurved in the unstrung state; each arm for a third of its length is curved sharply at right angles to the rest, which is only slightly curved, thus forming a marked rounded elbow. It is rather less powerful than the Persian bow described, being less stoutly made and of weaker materials. In external appearance it shows a strong resemblance to the Persian bow; the ears are shorter and the shoulders more pronounced, these being very square. It is entirely covered externally with a thin lacquer coat, differing in appearance from that of most bows of this or the Persian types; this appears to be due to the fact of its lying not on bark, but on a peculiar metallic layer resembling tinfoil, but infinitesimally thin, and perhaps painted on from a solution. It gives a hard appearance to the overlying lacquer. There is no trace of side strips of horn along the edges of the arms. The nocks are not, in this specimen, strengthened with horn.

On examining the structural details by means of sections, many departures from the Persian type are observable.

To take a transverse section through the centre and broadest part of one of the arms (Fig. 17), it will be at once seen that the horn here plays a far less important part than in either the Persian or Tatar types. The belly is not entirely composed of this substance, as in the latter types. The wood centres (*a*) is composed of a single piece along the arms; this is deeply and neatly grooved longitudinally towards the belly, in order to give firm hold to the glue, which forms a fairly thick layer (*b*) between the wood and the horn. The horn (*b*) is composed of single piece in each arm, and not composed of strips as in the Persian bow; its surface is grooved towards the wood. The horn does not extend to the edges, but is overlaid with a stratum of longitudinally disposed sinews, similar to those on the back, and apparently a continuation of them. The sinews are in a double layer; one layer, π^1 , composed of sinews with little glue mixed with them, does not extend over the horn, but fills up the space between it and the edges; this is a continuation of the inner layer of the back, c^1 . The outer layer, π^2 , overlies both horn and inner sinew layer, π^1 . The shape of the belly is thus to a great extent given by a padding out of sinews. The outer sinew layer, π^2 , is mixed with glue or cement, and has a dull grey brown colour; this is coated with a kind of red brown cement, the surface of which is smoothed. Over this brown cement lies the peculiar thin metallic film, which is extremely delicate, and it is difficult to prevent its rubbing off when exposed. To this is applied the external ornamental lacquer.

not easy to account for the substitution of this

metallic layer for the bark one, as it seems to be but an indifferent vehicle for the lacquer, which flakes away from it ther easily. The external sinew layer of the back, c^2 , differs from that on the belly in being only slightly mixed with glue and having none of the grey brown cement.

Fig. 18 shows a dissection of the belly of this part, displaying the succession of the layers, a =the wood; h =the glue; b =the ; n^2 , the outer sinews mixed with grey cement; o , the brown cement; l , the lacquer.

A dissection of the back is represented in Fig. 19; p is the metallic film.

Fig. 20 is taken from a transverse section through the centre of one of the ridges. The wood centre is seen here to be composed of three strips, a^1 , a^2 , a^3 , of which the centre piece, a^1 , enters largely into the formation of the ridge, and is a wedge-shaped continuation of the "ear," which fits between two divided ends of the single piece forming the arms. The extremities of these double ends form the shoulders. The horn has dwindled down to very small proportions, as it is thinned away it approaches the shoulder, and adds but little support to this ~~rk~~. This reminds one of the "Tatar" bow, and shows divergence in the Persian types; but this specimen differs from both types in the belly at this point being chiefly built up of sinews and cement. Beyond the "shoulder" the "ear" is formed of a single piece of wood, but a layer of sinews encases it as far as the nocks. The actual tips are painted black, as though intended to represent horn.

A transverse section through the centre of the "grip" (Fig. 21), shows that the bulk of this portion is composed of a single piece of wood, a , the horn, however, playing a fairly important part. Round the whole lies the inner layer of sinews, here evidently perfectly continuous all round, c^1 , n^1 ; and over this on the back the outer sinew layer, c^2 , and on the belly the layer of sinew and grey cement as before, the two different layers meeting at the sides and overlapping one another slightly. This double sinew casing is of an equal thickness all round, and the shape of the grip is formed by the wood and horn. The central piece of wood is continued wedge-like into the arms, tapering at either end and fitting into a V, formed by the divided end of wood of the arms. Represented diagrammatically the wood of the whole is arranged thus; rather more than one half bow being represented.



The two strips of horn do not meet the Persian bow above, a little away from their point.

The more prominent structural peculiarities of this type then, are:—(1) The small proportion of horn in its construction; (2) the presence of layers of longitudinal sinews on the belly, replacing to a great extent the horn; (3) structure of the wood base; (4) the absence of a layer of bark and the presence of cement and metallic coat; (5) the absence of side strips of horn.

It shows resemblance with the "Tatar" type in the sudden bend at the elbows; in the formation of the ridges chiefly from the wood centre; in the *single* strip of horn in each arm; in the *double* layer of backing sinews; in the thinness of the horn towards the "ears." It resembles the Persian type in the general moulding of the shape of the different parts; to a certain extent in the structure of the wood base; in the *entire* concealment of structure beneath an ornamental coat.

There is evidence that this form is, to a certain extent, a degenerate offshoot from a higher type; e.g., the comparative weakness of the whole, and also the weakness of certain parts. This latter is indicated in very many examples by rough external bindings or splicings at the elbows and on either side of the grip, added in order to assist these parts to stand the severe strain. Sometimes these splicings have been added after the completion of the bow, as the lacquer coat has been first completed over these parts, and it seems as though the weapon had been discovered to be weak after use. In other cases it has been applied in the first instance, as a finishing touch; the lacquer having been omitted at the parts where the splicing was intended to be added. Fig. 22, taken from a specimen in the Pitt Rivers collection, shows one of these bows spliced in this fashion; it recalls the similar cross splicing at the elbows of most Western Esquimaux bows.

Another possible sign of degeneration is the absence of the side strips of horn along the edges. These, however, are frequently imitated by means of lines of black paint, thus indicating the desirability and former presence of the real material. Their absence is due to the continuation of the sinews round to the belly, thus leaving no edges to be concealed and finished off; but as this is so at the expense of the horn reinforcement, and so also of the strength of the weapon, it cannot be regarded as a mark of progress.

Again, the substitution of other materials for the bark layer as a vehicle for the ornamental lacquer does not, judging from this specimen, appear to be a success.

The Indian bows vary to a considerable extent in form and external appearance, but, so far as I have been able to see

metalic layer. In addition, the greater number do not differ essentially in structure from the specimen described, which may be taken as fairly typical of the class. Many approach more nearly to the Persian type, and bark is often present beneath

We have not been able to examine a number of Turkish bows, but gather that they are for the most part only slight modifications of the type of which the Persian and Indian bows are varieties.¹ A bow in the British Museum, described as Turkish, is small and very beautifully finished. Its length is 3 ft. 8½ in., and greatest width 1½ inches. The grip is covered with bark, and bulges towards the back only; the horn of the belly is exposed and polished, thus resembling one of the "Tatar" type; it is in two pieces, separated at the centre of the grip by a thin ivory plate. The sinew backing is covered with thin black leather, upon which are picked out in gold. The ridges are strongly marked at the "ears" of plain wood and very short, partly the back with birch bark. The nocks are lined with horn. In a transverse section the arms are plano-convex. It is peculiar for its size; the reflex curve is very regular and gradually towards the "ears," resembling the most Persian bows. Of the internal structure I am unable to speak.

I have confined myself in the above remarks to the class of weapons which goes by the name of the "composite bow," that is, bows which have a reinforcement of sinews on the back, and which in many cases exhibit further a composite structure, in the presence of a variety of materials. There are, however, a few forms which, although they must be excluded from this class, nevertheless show a relationship to the composite type, and give evidence that they have been derived from it.

Many plain wood bows from the Oregon Indians have a reflex curve when unstrung, though this is not due to the presence of sinews on the back, the curve being innate in the wood itself. They are very flat, short, and a plain general character suggest relationship to bows of a different nature. Besides these, most of the bows of the Chinooks show a similar relationship. These again are "flat" bows, but with a strongly plano-convex or convex section towards the back to the fore and origin. A further character is the having a line of sinews along the back, which may be continuous or broken, and in a former case, giving, or even a

of the Composite Bow.

used formerly to lie, though now disused and merely retained from force of habit.

In Java we find a bow which is peculiar to the island. It is composed of two arms each consisting of a single piece of horn, usually of black buffalo horn, meeting at the centre, where they are fixed into a large rounded wooden handle, composed of two pieces, joined at top and bottom with a metal ferule. The horn is plain and smooth, in section plano-convex; in the unstrung state there is a strong reflex curve; the nocks are deep and the extremities laterally flattened, and there are ridges below the nocks. From these characters it would seem as though the Javanese bowyers had originally had the Asiatic composite bow in view. This being so, one can understand that the material (horn), which alone is exposed to view in the Asiatic model, suggested the use of that substance for the construction of the whole. Raffles, in his history of Java, tells us that these bows ("Gendewa") are seldom used in modern days, except on state occasions. Perhaps I may be allowed here to digress a little in order to mention a somewhat interesting fact which lately came under my notice. Dr. Hickson, on his return from the Malay Archipelago, showed me, amongst other specimens, a bow which had been obtained from New Guinea. This, however, proved to be a perfectly characteristic Javan bow, such as I have described, which had somehow found its way eastward to a region where its proper use was not appreciated. The strongly recurved outline of the bow, when unstrung, does not appear to have suggested its *raison d'être* to the mind of the savage into whose hands the weapon fell, as he adapted the bow to his own use by adding a bow-string of rattan, ingeniously fixed on the wrong side. He thus made the *reflex* curve that of the strung bow, and in this way contrived to minimize the power of the weapon. Moreover the shape of the nocks is not adapted for a flat rattan string, which in this case does not present its flat surface towards the bow, as in all New Guinea bows, but edgewise, in a highly ineffective position. This serves perhaps to emphasize the intimate connection between this reversed curve and composite structure, and to strengthen the idea that the Oregon bows, above mentioned, are copied from composite bows. It is unusual to find a recurved outline in, so to speak, "pure bred" self bows of savage races.

Another kind of bow, which shows a relationship to the "composite bow," is that described as formerly in use in Lapland. This weapon has entirely vanished in these parts, and was apparently obsolete at the time of Linnaeus' visit in 1732. It cumbered entirely before the inroad of fire arms.

It is for the most part of very primitive type; no t

I saw among the Lapps during a short visit at Finmarken, were modern reproductions of "aphanice." I cannot do better than reproduce the one given by Jean Scheffer¹ of these bows;

la plus en usage sont les arcs, aunes, larges de deux doigts, du pouce ou d'un peu plus, faits de deux ent l'un sur l'autre. Car ils mettent sur un autre bâton de Pin, qui par l'abondance est doux et facile à plier, afin que ses qualités aident à pousser bien loin les dards et les deux d'écorce de Bouleau, pour

se injures de l'air, des néiges, et de la pluie, les sont collées ensemble avec une espèce de résine préparée et font ainsi cette glu. Ils ne que l'on nomme perches, dont ils ostent fraîchement peschées, ils les tiennent dans l'eau à ce qu'on les puisse nettoyer de toutes les saletés. Ils les font cuire dans un peu d'eau, et ont

l'habitude de les remuer souvent, de les battre avec un bâton, de les consumer jusqu'à ce qu'elles ne ressemblent que de bouillon; ils rependent cette liqueur dans un lieu où elle se durcit, et la conservent pour l'usage, et quand il faut coller quelque chose, ils la font fondre dans un peu d'eau. . . . This bow is composite

in extent of being composed of two kinds of wood, but no new reinforcements seems to have been added, and this must be regarded as a variety of the plain bow, though the influence of the proximity of bows of strictly "site" type to a very considerable extent. It is said that the Lapp bow resembled in shape the "Tatar" form, and the figure bears out this statement; the presence, moreover, of a covering of birch bark betrays a connection with the "site" type. The bark in this bow, as in the Siberian bow, appears to have served a purely useful purpose, without being used as a vehicle for embellishment. General Pitt Rivers mentions that these bows were held horizontally, in the practice of combat, like those of the Esquimaux. The practice of combining wood with wood, in forming bows, is very popular in

England, when introduced from France, and has continued to the present day. Usually a thin strip of ash, elm, or hickory was glued upon the back of a yew bow, when the best quality of the latter wood was not obtainable. Occasionally the two pieces were ingeniously united together by a groove and dovetail throughout their length. These bows must, however, be regarded as varieties of the "arcus" or plain bow, and not related to the "composite" bow.

Steel bows have been made in imitation of composite bows of Asiatic origin. Anuchin says, "Composite bows from the Greeks spread to Italy in the XV and XVI centuries, where their form was imitated in bows made of steel, as also in India and other Eastern parts."

One more kind of bow deserves mention, as particularly interesting from the locality in which it is found. W. M. Moseley, in his "Essay on Archery," says, "The Otaheite bows are very long, and consist of one piece only, on the back part of which there is a groove containing a pretty thick cord. The cord reaches the whole length, and is fastened very strongly at each end. This contrivance is found very serviceable in assisting the strength of the bow, and acts in some measure as a spring." He also compares this to the sinew backing of the Esquimaux. I have never seen a specimen of a South Pacific bow reinforced with a cord in this way, but this passage seems to offer a far more rational explanation of the groove, which forms so characteristic a feature in the bows from the Tongan group, than that given by Captain Cook,¹ who says of them, "On the inside is the groove in which is put the arrow, from which it would seem that they use but one." Very likely this may have been a *secondary* use of the groove; Cook in fact figures an arrow *in situ*, but then this could hardly have been sufficiently desirable to have *given rise* to the groove. The ends of most Tongan bows are carved to form slightly raised channels, whose hollows are in continuation with the groove along the backs of the bows, *see* Fig. 23; the outer ends of these raised channels form the shoulders upon which the bow-string rests when the bow is strung. The form of these channels, and their continuation into a groove along the back of the bow, is very suggestive of their having been intended for a cord to lie along, the groove being necessary in order to prevent the cord slipping away when the bow was bent. The cord could have been wound round the shoulders in the same way as the bow-string. The groove along the back varies very much in depth in different *mens*, in some being deep enough to contain an arrow, others it is very slightly marked indeed and incapable

¹ "Voyage, 1772-75," Vol. i, p. 221, and plate.

a useful purpose. Possibly, in the case of these latter, cord reinforcement went out of use, and the deep groove no longer necessary, the latter was still from habit carved along the back, though far less deeply, in specimens being a mere narrow indented line; the raised ribs in some specimens no longer exist. I do not know of any heitan bows which have grooves, or which appear to be intended to be used with a "backing" cord, but it is possible that the bows which Moseley described as from Otaheite were really bows of the Tongan form, and perhaps from that group of islands. This form of reinforcement must have been independently evolved in the South Pacific, as the only other races using a "free" backing are restricted to North America and the easternmost parts of North Asia. The case should therefore be regarded as analogy rather than of homology. Bows from Guiana frequently have a groove or furrow running along the back fairly deep, and the Chunchos of Peru are said to spare arrow into the groove and hold it there with the hand. There is no evidence, so far as I know, of a cord being used in South America (though it is common with a spare bow-string fastened to them). This may be taken to go against my remarks in the case of the Tongan bows, as I have in South America bows in which a groove is used solely for the insertion of an arrow, with no record of its having been otherwise used; but I think that nevertheless the fact of there being specimens of reinforced bows on record from the South Pacific, coupled with the very specialized form of the groove in many of the Tongan bows, gives support to my suggestion.¹

In seeking for the original home and birth-place of the composite bow, the mass of evidence seems to refer us to some part of North Central Asia, possibly the more northerly regions of the ancient Scythia, where the absence of wood suited to the making of "plain" bows created the necessity of employing a combination of heterogeneous materials, in the attempt to make the bows of other people. There is strong evidence, as Sir H. R. Hall points out, that this scarcity of proper wood led further to the southward in prehistoric times than it

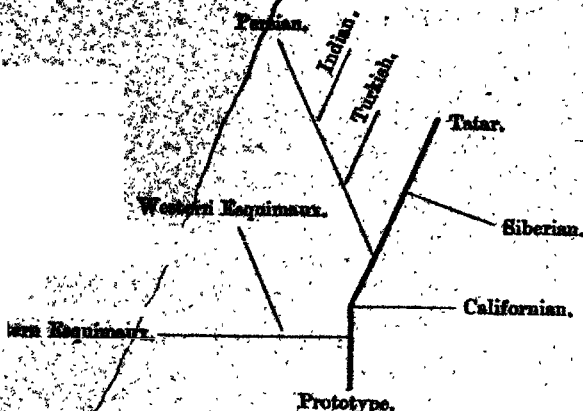
It is impossible to say whether the "free" backed bows, of which those of the Esquimaux are survivals, were really the earliest, and that this was the most primitive method used in reinforcing the bows. This kind, if it ever existed there, has entirely disappeared in Central Asia; but when we consider that all northerly races, from Lapland across Asia and America to Greenland, employ the sinews of animals constantly in the form of twisted thread or plaited cords for a variety of purposes; whereas *moulded* masses of sinews are, to say the least, but rarely employed, we can see that there is great probability that the earliest way in which sinews were employed for backing bows, was in the form of twisted or plaited cords rather than of masses. If this be so we must consider that the introduction of the bow amongst the Esquimaux took place at a remote period, and that these have existed in this state to the present day, chiefly on account of the isolation of these parts; though in the westerly regions the bows of the Esquimaux shew that they have been influenced, in shape at least, by the proximity to the Asiatic continent, and that for the same reason, as well as because of the access to better materials, these bows have been greatly improved and altered from the primitive type, which to a certain extent is represented by the Eastern Esquimaux examples.

Its spread from the place of origin to other parts of the world, gave in some cases a new weapon to nations which could never have used the earlier "self" bow, whereas in other cases its introduction amongst fresh races must have been subsequent to its having reached some degree of perfection, as it ousted the "self" bow then in use, and became recognized as a superior weapon. Thus by its spread in a northerly and easterly direction, across the Behring Sea, the Esquimaux became possessed of a weapon hitherto unknown to them; and so also in the case of Siberia, where it is very improbable that the natives made use of a plain wood bow. When introduced by the Mongols into China it supplanted the "plain" bow, which already existed there. General Pitt Rivers mentions that the "kung" bow was not the original bow of the country, but was introduced by the Tatars. It spread into India from the north, and here again the indigenous "long" bow has given way before its composite rival, and only the uncivilized aborigines of the north retain the use of the former, though it has held its own in South India and Ceylon.

We know that the Persians owe this weapon to the Scythians, as Herodotus tells us that Cyaxares, King of the Medes, and great grandfather of Cyrus, among other important military reforms, adopted the bow as a military weapon, having learnt during his wars with the Massagetae, Scythians

of races. He even kept certain Scythian archers to his son Astyages to shoot. Cyaxares died B.C. 594, but remained in use and became a national weapon, and as it is a national emblem. Persian bows remained celebrated to the eighteenth century.

It is not easy to represent the probable affinities of the different existing varieties of the composite bow in the form of an enological tree, but I give here a rough scheme, which seems to me to illustrate broadly the lines of connection of the leading modern types.



I have aimed in my paper at giving an account of the comparative anatomy of the composite bow, in order to illustrate the structure and affinities of the chief varieties. I regret that I have had so little material at my command, as the dissection

a larger number of varieties would no doubt contribute towards establishing the lines of connection between and their modes of derivation from earlier forms. Instances of a "geological record" and "embryology," which so materially assist the animal and vegetable zoologist, in tracing the history of such an object, the anthropological comparative anatomist can be content with observation made upon the weapons and thus the number of his conclusions is

unably limited.



Fig 1

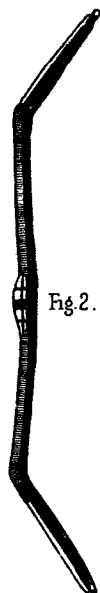


Fig 2.

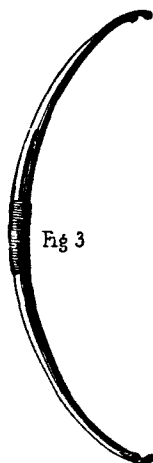


Fig 3



Fig 22.

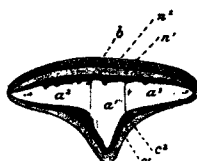


Fig 20.

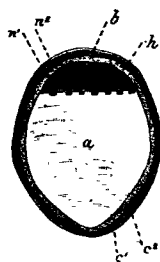


Fig 21.

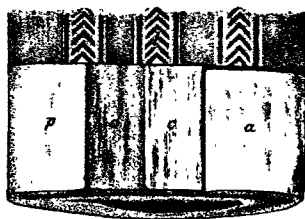


Fig 19.

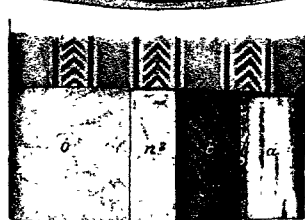


Fig 18.



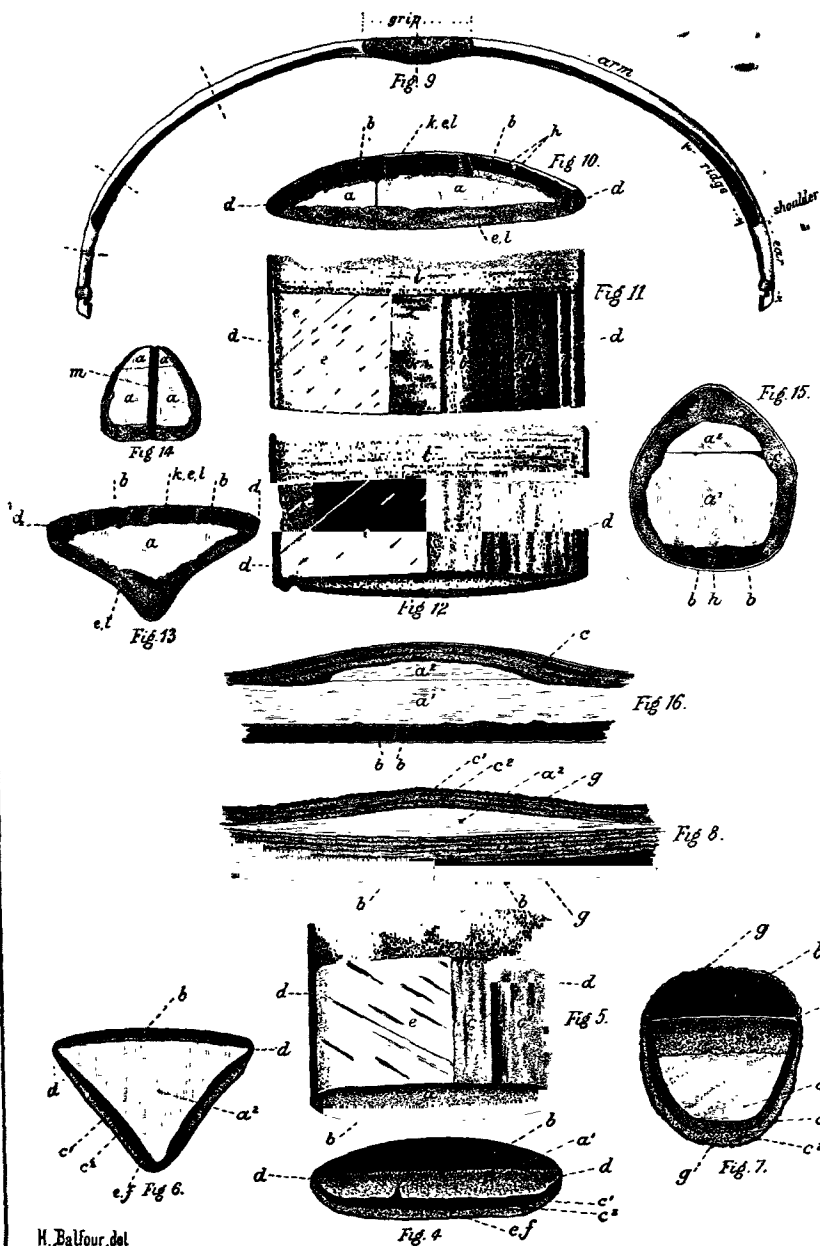
Fig 17.



Fig 23

H. Balfour, del

Waterlow & Co.



H. Balfour, del.

Waterhouse, Eng.

Description of Plates.

Description of Plates V. and VI.

Fig. 1. Bow with simple form of "free" sinew backing; Eastern Esquimaux. Obtained by Capt. Lyon. Ashmolean Museum collection.

Fig. 2. Bow with more advanced type of "free" sinew backing, and shewing the "Tatar" outline. Western Esquimaux, near Icy Cape. Obtained by Capt. Beechey. Ashmolean Museum collection.

Fig. 3. Bow with simple form of "close" sinew backing, California. Obtained by Capt. Belcher. Pitt-Rivers collection.

Figs. 4-8. Chinese bow of "Tatar" shape.

Fig. 4. Transverse section through the centre of one of the "arms."

Fig. 5. Dissection of the back at the same part.

Fig. 6. Transverse section through the centre of one of the "ridges."

Fig. 7. Transverse section through the centre of the "grip."

Fig. 8. Longitudinal section through the "grip."

a¹. Wood base extending along "arms" and "grip."

a². Hardwood forming the "ears" and "ridges," and inserted as a plug to pad out the grip.

b. Horn, a single piece to each arm.

c¹. Inner layer of backing sinews.

c². Outer " " "

d. Side strips of horn.

e. Layer of fine inner bark of the birch.

f. Coarser outer bark.

g. Coarse transverse sinews round the grip.

Fig. 9. Persian bow, dotted lines indicate the points at which transverse sections have been taken in the following specimen.

Figs. 10-16. Persian Bow.

Fig. 10. Transverse section through centre of one of the arms.

Fig. 11. Dissection of the belly at the same part.

Fig. 12. Dissection of the back at the same part.

Fig. 13. Transverse section through the centre of one of the ridges.

Fig. 14. Transverse section through one of the "ears."

Fig. 15. Transverse section through the centre of the grip.

Fig. 16. Longitudinal section through the grip.

a. Hardwood base.

b. Piece of hardwood inserted into "grip."
horn.

collection and of accumulating additional evidence about the specimens contained in it. The bow occupied fifteen pages of my descriptive catalogue of the weapon department of my museum, which went through two editions in the hands of the South Kensington Authorities, before the collection was presented to Oxford, and of these, six pages were devoted to the class of bow to which I gave the name of "composite" in order to distinguish it from the plain bow.

The general idea that I endeavoured to give expression to in connection with the composite bow was, that it probably originated through necessity in a region in which suitable elastic woods for the plain bow were not to be procured; because it is used exclusively in the north, in which part of the world such woods do not, or in early times, probably did not grow in great profusion; because it is quite unknown in southern and tropical regions where such woods do grow habitually, and also because there is distinct evidence that in India and China the use of the composite bow came in from the north.

Supposing that this class of bow was adopted through necessity, from the absence of proper wood for making a plain bow, and that it was of very early origin, then, as we know that in times following the Drift period, the cold region, in which nothing but drift wood could be obtained, extended much further south than is the case at present; and we have also evidence that the Esquimaux in some places now adopt this form of bow because they can get no better, and that people resembling the Esquimaux in their arts and implements are known to have inhabited as far south as the h. caves, the same cause may have led to its adoption in early farther south in the world and in places where no necessity of a makeshift exists at the present time.

perishable materials of which the composite bow is composed make it impossible to trace its history by means of ancient specimens. In the case of bronze and stone implements we are enabled to arrange them with some certainty in the order in which they were invented or introduced, but in the case of objects so subject to decay as the bow, and especially the composite bow, it is only by means of survivals that we can form any conjecture as to the order in which they arose; and this is always an uncertain process, because degeneration of form is as prevalent in all the arts of life as improvement. In nearly all arts it is possible to obtain and arrange specimens so as to represent continuous stages of perfection or imperfection arising as much from carelessness in manufacture, want of intelligence, or the absence of suitable materials on the one hand, as from the exercise of inventive genius, increased skill, or increased facility for obtaining better materials or more perfect tools on the other hand. No clue can be arrived at as to whether the several objects be regarded as successive links in an ascending or a

forward provisionally with respect to the

the bow, and which Mr. Balfour appears to have adopted as the Esquimaux bow, consisting of separate pieces of rivets, strengthened and rendered elastic either by means of sinews tied on at the head or into a thick cord and bound on upon the head the survival of the earliest form of the compound bow, in the absence of a better material to form in order to serve his purpose in the bows in which, like those of the Californian tribes of the north-west coast of America, of being formed into a strong cord or sinews in the back, is spread over the back in thin layer

over form which all massed into the more advanced bows, in which the being spread over a covered over with bark gives it the appearance of a shield that the concept of the Western Esquimaux, both of the curved bow, Mr. Balfour terms "ear" or elbow, the particular influence on the flight of

the steel bow, made entirely of and consequently not a necessary adjunct of the weapon; unless indeed it was of bow through sheer unreasoning conservatism, rivals in the material arts. I think, however, its form may have a tendency to draw the bow-string in direction of its length during the release, and thereby to increase the initial velocity of the arrow.

Other point connected with the origin of this which Mr. Balfour has not entered. He has spoken of some varieties in the construction, but he has not said anything about the different changes and additions which each variety must either have been introduced or might have been introduced through the influence of the craft of the bowman.

Marketry, I had considerable experience in the methods of testing the range and accuracy of missile weapons, and I am well aware how much care would be required for such an investigation. Yet the information is not altogether inaccessible, and from what I was able to gather, the composite bow does not appear to be a superior, but, if anything, an inferior weapon to the plain bow, when made of the proper wood and in skilful hands. We know how tenaciously the soldiers of our own country clung to the long bow for some time after the first introduction of fire-arms, and how many works were published in praise of it at that time. But this has an important bearing on the origin of the composite bow, which, being of more complex structure, must certainly be of later introduction. No one would have originated the idea of piecing together several bits of hard unobtainable material, and giving them elasticity by means of sinews or hide, unless they had previously been acquainted with the use of the plain bow. It must either have been done through necessity or by way of improvement, and upon this depends the question whether it was introduced in a primitive or an advanced stage of the arts. If the composite bow has any material advantages over the plain bow, then there is no occasion to bring in necessity as the cause of its origin. It may have been intended to give increased initial velocity or greater range or momentum to the arrow; it may have been a means of producing equal power with a reduced length of bow thereby better to be used on horseback, and it may have been in its day as a triumph of mechanical ingenuity, in the Western Esquimaux bow with its stout cord at the tip the Eastern Esquimaux bow with its numerous strands bound on behind, the North West Coast bow with its backing, and the various descriptions of Asiatic bows. If Mr. Balfour has introduced into his paper, may be degenerated copies of the more perfect weapon. Perhaps the observation of Sir Edward Belcher that the Esquimaux in their construction of this bow, appeared always to have the Tatar form in view, and the observed fact that the nearer the American tribes to the Asiatic continent, the closer their bow resembles the Tatar form, may be taken as an argument in favour of this view. But if, on the other hand, it can be shown that the composite bow, even in its most perfect form, never exceeded or equalled the plain bow in its performances, it is evident that no one would have taken the trouble to construct the more complicated bow with its numerous contributory processes, when they could have obtained a more powerful weapon by simply employing a bent stick. On this hypothesis it would be reasonable to regard necessity rather than improvement as the cause of its introduction, and to assume that it probably have come into being lower down in the scale of civilization and at an earlier period in the history of the world's arms, and the various forms now in use in different parts of the world as successive stages of improvement rather than the decline of the art. In this, as in all

the various stages, who her of improvement or decline
different places at the same time. They are like
eruptions cropping out on the surface: like different
animals representing different stages of development
different areas at the same time; or like the dialects
of languages co-existing and showing affinities for
yet not derived from one another, but from earlier and
unrecoverable originals. But it is evident that the be-
haviour apart from its performances, and that the cause
of the variations will have to be taken into
account, we are ever so have an exhaustive treatise on the
subject which Sir Richard Burton has written for the

contribution to the subject was nothing more than
a study of the few contained within the limits
of the collection, and included as part of a series of other
collections which my museum was collected to throw light
upon. I contained thirty-two specimens of bows,
and thirty-two specimens of arrows, and the number of
specimens of the collection was presented to it
that the amount of illustration in my catalogue was
the South Kensington Authorities, by whom it was
and was finally made into an album. The collection
of Sir Richard had gone into much greater detail, and
as I think, extended the known area of distribu-
tion, he has contributed materially to a
knowledge of their construction. It is also
to find that his researches have done nothing
but that I at first held, but have rather confirmed

trust he will be encouraged to take up hereafter
part of his own, for nearly all the arts of life
are in some developmental treatment, and the field that
of the corner of a museum of evolution, such as I have
tried to establish at Oxford, is almost unlimited. In
it is so designed and arranged, no halting place is possible
itself develop as the series of objects contained in it
it; and series will have to be introduced, and the
extended, modified, and the superfluous objects leaving
the sequence of their development must be shown
sequence will have to be established continuously
in the location in which they are situated
and finally, the series of objects

ANTHROPOLOGICAL MISCELLANEA.

RACE AND LANGUAGE.

I have read with much interest Colonel Campbell's note on the above subject ("Journal Anth. Inst.," Vol. xix, p. 89). But with regard to my own note on the matter (Vol. xviii, p. 439), I fail to see in what way I have "misunderstood the Duke of Argyll, or the Duke Captain Burt."

The passage quoted by Colonel Campbell from "Burt's Letters" seems to me to show that the Duke's statement that, "so late as about 1730-35 it was difficult to get domestic servants from Fifeshire who could speak English" is practically borne out by Burt's remarks. My own object was to call attention to the fact that in a county like Fife, occupying towards Edinburgh a position similar to that of Essex towards London, a Celtic language was spoken till in Cornwall—the people of Cornwall being admitted to many of Celtic race, while Fife is commonly supposed to meet as "Saxon" as Berwickshire, and the Lothians. This is the case of Fife much more noteworthy than that of any of the old Kingdom of Strathclyde (the population of which always been allowed to be largely Celtic and pre-Celtic by all), though it is interesting to learn from Colonel Campbell there is evidence that "Gaelic was spoken in Galloway till the middle of the 18th century."

I have long felt with Colonel Campbell that "we must recognise at change of speech, or even change of sovereignty, implies no change of race." The subject of Race and Language, indeed, rests so much in the way of remark and illustration as to be beyond the scope of a brief note. So I will only add that it seems to me that while a record that English was the language of the great mass of the people of Fife 400 or 500 years ago, would in no means necessarily imply the destruction, or driving out, of a great part of a pre-existing Celtic-speaking race, the fact that a Celtic tongue was the language of the mass of the people a century and-a-half ago is strong evidence of the mainly Celtic origin of the present English-speaking inhabitants of Fife.

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JOURNAL

ICAL INSTITUTE

GREAT BRITAIN AND IRELAND.

VOLUME 12TH, 1889.

M.D., F.R.S., President, in the Chair.

at meeting were read and signed.

following resolution was announced:—

**SENIOR, M.D., LL.D., D.C.L., F.R.S.L. &
or of Anatomy in the University of
of 6, Eton Terrace, Edinburgh.**

**PROFESSOR ALEXANDER FRASER, M.B., Royal College of
Surgeons, Dublin, of 24, Leeson Park, Dublin.**

**Professor A. C. HADDON, M.A., Cantab., M.R.I.A., of the
Royal College of Science, Dublin.**

**ROBERT HOWDEN, Esq., M.B., of 82, Elswick Road,
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G. F. LAWRENCE, Esq., of 55, High Street, Wandsworth.

**MR. H. RISLEY, Esq., M.A., H.M. Indian Civil Service, of
1, Löwenstrasse, Hanover.**

The following presents were announced and thanks voted to
the respective donors:—

FOR THE LIBRARY.

is Arrived. Notes on some characters from a Negro recently discovered by Mr. W. G. P. Drive the Chaco-Nagpur District. By J. Wood Mason. The influence of posture on the form of the articular surf of the tibia and scapulae in the different races of Man: the Indian-Arabs. By Arthur Thomson, M.A., Oxon., M.B. Surgery and theology of the Mojave Indians of Arizona. By Captain John G. Bourl. The history of the Ancient Egyptians. By H. B. The influence of Land Surfaces of the Palaeolithic Thames Valley, etc. By Jno. Allen. The influence of Primitive Man, associated with the Chaco-Nagpur District. By John Allen Brown, F.R.S. The influence of the rib in Man and its relation to the rib. By Prof. D. J. Cunningham, M.D. The influence of cartilage in the lumbar vertebrae of the Ape and several races of Man.

There is an Aboriginal Australian. By D.

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The PRESIDENT read the following Paper:—

Observations on the NATURAL COLOUR of the SKIN in certain ORIENTAL RACES.

Dr. BRIDGES, F.R.S., President Anthropological Institute.

round the world, in 1885, afforded an opportunity a few observations on the colour of the skin in some

the observations were taken for the most part on the clothed body, so as to obtain the natural colour unaffected by sunshine. usually selected the outer part of the upper arm, but when this part was unavailable, some covered portion of the chest; very frequently both arm and chest were inspected, when, if any difference appeared, the mean between the two was noted. regret that I seldom made any record of the colour of the exposed parts, such as the face, for the purpose of comparison. did this, however, in two or three Chinese and Anglo-Australians, and I observed the colour of the exposed parts only of 2 Singhalese, and in about 15 of the so-called Portuguese of Goa, and in about 20 Lascars from Gujerat.

My largest series are two of 35 and 20 respectively, from the eastern extremity of New Guinea and the neighbouring islands, the Louisiade group, &c., and from the New Hebrides.

Nashville, with the kind assistance
 inland, and consisted of "cool"
 sugar plantations, or of the same
 rice fields of work. In either
 pean clothing for a consider-
 able time of time, as given in

of very nearly
 20 or even 30
 the trapping of
 into four sets
 the shade of
 through red
 33, 34, 35,
 through the

yellow-brown and olive-brown
 33, 47, 45, 40, 46, 22, 39, 3

black, 24, 51, 50, 49,

and 48, three varieties
 able by my eye, though

different shades, of varieties of color
 of these observations was very
 out the constituent elements, the
 only nineteen, and in accordance
 the tables which illustrate the
 colors are set down, I have assigned
 the whole value; where the

tioned, between which the actual complexion stands, I have
 red one-half to the first mentioned, and one quarter to each
 of others. The darkest shade met with in the clothed
 was far removed from black. It was 42, a deep reddish
 brown, and occurred in purity only once among the 35 New
 Guinea men (in a mainlander from Wagga-wagga), twice in
 the New Hebrideans (Aralap and Malicolo), and three times
 among the Australians. This fairly represents the position of
 these three races, if I may call them so, in the scale of colour,
 Australians being the darkest, and the New Guinea men
 lightest.

TABLE I.—ELEMENTS OF COLOUR. DECADES.

	Grey.	Yellow.	Orange.	Red.
Chinese	2.7	3.9	.2	3.0
N. Guinea... ..	.3	.5	2.5	6.7
N. Hebrides	4.0	6.0
{ adult7	5.0	4.3
{ children	4.1	5.8
{	5.4	4.4
{	4.1	5.8
{	6.2	3.7
{	6.2	3.8
{	1.0	5.0	4.0

Con

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THE UNIVERSITY OF CHICAGO

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Abstract

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Examination of the tables brings out strongly the prevalence reddish hues in most of the peoples observed, but especially in the Pacific Islanders of whatever race.¹ The Chinese are an exception: in them yellow preponderates, and grey is common, but pale reddish hues are far from being otherwise. The variation among the Chinese is considerable: of twelve, two were to my eye purely pale red (21 and 26-32), three purely yellow, two orange, and five of sundry mixed hues, into which grey entered more or less. The Fokien people are easily distinguished from other South Chinamen; at least so easily, that having seen one, I was able to diagnose the next that I met with, though the one was pale yellow and the other light grey (23-52 and 24). Both had features almost European, with well-formed aquiline noses.

It will be observed that in respect of colour, the Chinese and the Australians are mutually exclusive; with all the other races examined the former have at least one point of contact, according to my second table. Still, the correspondence is not exact except in two cases among the Oriental series: it is only the New Guinea men and the Maoris, both of the Malay group who reproduce exactly a colour type or combination found in the Chinese, viz., 21 of Broca. There is really more in this respect between the Chinese and Europeans than is usually supposed. An Amoy man and a Macao man, supposed to be of Chinese blood, and showed no other than European admixture, yielded me Nos. 24 and 25, only ones by which I could designate my Englishmen. In a swimming-pool, wherein a number of Englishmen and Chinese were working together bare-legged, it was difficult and impossible to distinguish the darker Europeans from the Chinese by the colour of the legs alone. I lay no stress on this point as showing the presence of an Arian element in the Chinese; though some may do so; and though the fact is pretty certain on other grounds.

There is a great difference in the degree to which skins whiten or blacken from exposure, and errors are often committed as to the natural colour of races in consequence of this fact. Thus my Melanesians (from Fiji, New Caledonia, Maranoa, and an unknown island) were naturally of a lightish red or orange colour, decidedly lighter, on the whole, than the Australians or even the New Hebrideans. But they *burn* almost black, much darker than either of the races with whom I have compared them. Their natural colour is identical with that of the

¹ I regret having made no exact notes on the Somali, many of whom I saw at Aden. They are the reddest of men, and reproduce in modern times the ancient (African?) Egyptian male of the old paintings.

Habridges people are darker than those of the neighbouring islands. They are tall islands a good deal, but on the whole the Australians, with a little more of the



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1. The following table shows the number of people who have been convicted of a crime in the United States since 1990. The data is presented in millions of people.

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the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion. The number of people aged 65 and over is expected to increase from 250 million to 450 million. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion. The number of people aged 15 and over is expected to increase from 3.5 billion to 4.5 billion.

DISCUSSION.

Dr. Garson congratulated the Institute that the paper of the subject was the result of observations made under circumstances in which most travellers would have let slip. Wherever Dr. Beddoo had been he had made observations of the various races he was in contact with, and had consequently been able to present the Institute a valuable paper. In connection with his observations on Australian Aborigines, Dr. Garson inquired whether or not Dr. Beddoo had observed any physical differences in the people in various parts of Australia he had visited which would lead to the conclusion that there was or had existed more than one of Australian natives, as some anthropologists had tried to show. The question was an important one in connection with the ethnology of that part of the world where, in some respects, well-known varieties of mankind were met with, removed from one another by comparatively no great distances, as for example, the Tasmanians, now extinct, with their woolly or frizzled hair, and the Australians now known to us with their long straight or wavy hair, but whose cranial characters were much more nearly allied to the Tasmanians than the character of their hair would indicate. Any examination which would help to elucidate the ethnographical history of these races would be a valuable contribution to our knowledge.

Dr. Garson referred to the colour of the black races and the neighbouring coast of New Guinea is very similar to that of the natives of the New Hebrides group, i.e., a very dark brown. The colour appears to be decidedly darker towards the south-east peninsula of New Guinea. Dr. Beddoo had made a memorandum of the natives were oiled or not at the time they were taken, as oil on the skin somewhat darkens it.

Dr. Garson remarked that he was interested in Dr. Beddoo's list of Broca's types were insufficient to describe the shades of colour observed by him, having understood that the modern classification was rather towards closer grouping. He would like to ask Dr. Beddoo's opinion whether, for practical purposes, Broca's types should be increased in number.

Dr. Bannister, in reply, said he had seen hardly any Australians except those who were natives of either the coast or the interior of the Central Queensland, and these appeared to him to belong to the same race. In answer to Professor Haddon, he did not think the skin was sensibly darkened by oiling in any of the cases observed: no doubt the wild blacks in Queensland made use of a mixture of snake's gut and charcoal as a cosmetic; but the blacks he examined were semi-civilized, and nearly the same might be said of his Papuan Melanesians.

SECRETARY then read

following paper:—

**SUBSTITUTIONS, AND RELIGION
AFRICAN TRIBES.**

Mr. J. G. Frazer, of Trinity College,
ask to acknowledge my obligations to
omised assistance in the
Charles Brownlee, th
has given invaluable
a deep interest in the propo
stoms that are fast disappear
sh specially to menti
J. Lundie, the Rev. J
latter having made na

I.

According to the customs and super-
stitions, it is necessary to bear in mind
many of uncertain origin, which
have during the last two centuries
been in more contact with modern

Eastern
influenced in some

a primitive beliefs of simple barbarous people, such as were. Again, daring spirits have not been wanting—very of the Cape of Good Hope—to engage discovery and hunting, and these introduced some hazy idea of fire-arms. Bound this up a class of superstitions which it is at a separate from what is ancient and belongs to mythology. It thus becomes impossible, in to arrive at a perfectly satisfactory connecting what is recent one may reject what is permanent value. In what follows taken to examine and compare doubtful superstitions, and everything that could be traced to a European origin has been rejected, and only that retained, if doubt existed, which seemed to throw light on the history of the people.

The tribes whose customs are detailed in this first paper, are those occupying the South Eastern Seaboard between the Cape Colony and Natal, and to a distance of about two hundred miles inland. The principal of these are:—Giacas, Gcalekas, Tembus, Ondos, Fondomisi, Xezehis, Hlubis, Fingoes, and Basutos.

The Zulus may also be regarded as in the main having the same superstitions and customs as those named. These tribes, with the exception of the Xezehis, speak a common language, with modifications of dialect; they are all tillers of the ground and owners of cattle. They have, in the main, the same precise form of government and similar systems of law. None of them have a written language, nor any means of making a permanent record of their history. Laws are handed down from one generation to another by tradition, through a class of men who devote their attention to such work, while history is chiefly preserved in the form of song, commemorative of great and deeds of valour done by men of renown.

African natives are divided into clans, tribes, subtribes, and families, all under paramount and subordinate chiefs and of families—which latter has a much wider significance among Europeans—the family comprising many households, grandsons, sons-in-law, and other connections. Wealth is the door by which a man comes to be regarded as the head of a family, while connection with some royal household is only passport to the most insignificant subordinate chieftainship. The origin of royalty is lost in the mists of antiquity, but was doubtless primarily based on military prowess. Almost every second family claims kinship, directly or indirectly, with some royal household, and princes of the blood are found with

among the families of paramount chiefs intermarriages exist, so that most of the tribes are in this way less or more united by ties of blood as among European nations. Such unions, however, do not preclude war between hostile clans. But blood marriages are frequent, two men standing as paramount can never meet. If the one salute the other, and salutation acknowledge in rank of the chief saluted. If there is no chief's followers fall to blows, and a struggle is the result. Subordinate chiefs have a right of precedence assigned to them, and no friction. Subordinate chiefs visiting in another tribe always

they are. The writer once invi-
public function; such ascertained &
neither came. They could not be
tanger. Numbers of their follow-
deputies were tendered on behalf of
royal etiquette among the
slation of South Eastern Africa.
difference between one tribe
form and colour change frequently
on observed in many tribes at the

As, one tribe adorns all garments with shells, another with a or prepared bits of wood, all of which may be reversed a few years. The hair on the other hand is so worn as to indicate the tribe to which a man belongs; and a royal messenger sent home with his hair cut is equivalent to a declaration of war.

Tribal names are rarely the names of plants or animals unknown. The Basutos call themselves the "crocodile people," and they regard the crocodile as sacred. The Bechuana are called the "*Batlapi*," i.e., "people," but no special superstition as to the crocodile is known.

There are, however, a number of killings which would entail disease, death of children, and generally dirt and filth whose removal would be an aggravated offence against one of the objects of the act. It is to be mentioned that the late Governor, the late Colonel, the

is subject to

no special observance; during pregnancy there is a certain restriction ordained by custom, but departure from it is not regarded otherwise than as unusual conduct on the part of the woman, and no evil consequences are supposed to follow. After the child is born, and the wise women report favourably, the father slaughters an animal, sheep, goat, or ox—as a thank-offering to the spirits of his ancestors, his household gods, so to speak. This is also supposed to secure their favour on behalf of the child during the first few years of life. If this domestic sacrifice should be neglected, and the child grows up sickly, the magicians are called in, who after much ceremony and mystic rites, order certain sacrifices to be offered to propitiate the offended spirits, and as the major portion of all animals sacrificed is cooked and eaten, the magicians never stint the number of victims, nor are they careful to curtail the days of feasting connected with such religious observances. The father is not subjected to any special treatment after the child is born, only that he is on no account to see his wife during incubation time.

Names are given to children in the most arbitrary manner. Passing events serve to suggest a name, and not infrequently the childname is in after years rejected in favour of one supposed to describe some personal characteristic or quality of gait or figure. But while the name is selected at birth, there are other observances which must on no account be neglected. During incubation the wise women feed the child daily with a decoction of herbs, and repeat incantations, mostly utterly meaningless, which are supposed to insure natural development and physical health. Then a fire of aromatic *tomboti* wood kindled at intervals on the hearth, and the child is passed and repassed through the smoke, which insures mental vigour, wisdom, valour, strategy, and fluency of speech. The spirit of fire escapes in the smoke ascends, and this the child receives and retains, providing the whole process is duly performed by qualified persons. Children are never killed or maimed at birth, and a large family is regarded as a mark of special honour. When the elder or stubborn children die from any cause, the domestic sacrifices at their death are made more costly, and are performed by a tribal priest. In the domestic life of the people the father rules supreme in all things, and the children are surnamed after him and belong to his tribe. Neither father nor mother can transfer children to another clan, and persons residing among other tribes than their own still regard themselves as members of that to which their forefathers belonged.

A woman at marriage becomes a member of her husband's

to
life all the

rites accompany the receiving
It may be here noted that
live system of poor law. The
and a wealthy man who failed
neighbour with young children
dishonour the chief of his clan,
fine or

of an African may be said to
are connected with initiation
rate and protracted. Young men,
into the rights of manhood, must
is usually performed between the
and this being the most im-
d with the period of youth, a

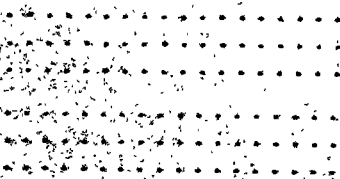
of the year, when the crops are
of ripening, all the young men of a
y the village doctor, or medicine man,
huts previously prepared at some
dwellings. Men are appointed to
and to prevent their having inter-
coer with women. They daub the
white clay, which for
distinguishing badge. During
which they have to undergo

to steal, and as every one is on th
about, stealing is not by any mea
the end of

mercifully for their clumsiness, while
ded as deserving of all praise. The
least bodily exercise in dancing and
e for several consecutive nights; be
rms and thighs, and at intervals of
riods, all of which is meant to har-
der them indifferent to toil, privation, and pain
may die in the training is a minor detail. At
initiation rites the white clay is washed
receive a new skin blanket (K...), and they all

proceed to the residence of the head of the clan, where the elders of the tribe have already assembled. Their bodies are now anointed with oil and smeared over with red clay (ochre). Larangues from the elders, minister of war, chief magician, and words follow. They are told that now they had washed off their white clay, and as all utensils, tools, and clothing which they had used during their isolation had been burned along with their temporary huts, so all that belonged to boyhood must be of the past and re-appear no more in their lives. They are now men; men's work and privileges are to be theirs, and the menial duties of childhood—herding, hoeing, and ordinary drudgery—is to devolve in future on their younger brothers. At this stage arms are placed in their hands, and this is the sign of full man-

With these they are to defend their chief, avenge his wrongs, wage war at his word, and generally use their weapons as he directs, even if it be against their own mothers, and we shall see that even this extreme of fidelity is occasionally demanded. There is no tattooing, knocking out of teeth, or any malformation whatever connected with the initiatory rites, nor are these ever practised except as a matter of personal choice or adornment. Various parts of the body are tattooed, but from the throat to the abdomen is most frequently selected, and the marks are generally in groups of parallel rows, thus:—



considerable variety of detail in the case of individuals. A is very rarely tattooed, and in no case do such marks distinguish badges for either men or women. Among both Zulus and Pondos the ears of boys and girls are pierced, and distended so as to admit a very thick quill; but this practice is not connected with any period of life, and is merely treated as a personal adornment or, more correctly, a receptacle for ornaments in the form of earrings or small tapering horn-shaped reeds, which hang dependent over both shoulders, the quills looking forwards and upwards, the reed being fixed in the lobe of the ear as if in a socket.

Girls at puberty are grouped and isolated in much the same manner as the boys. One of the old women of the village performs a surgical operation, and after a period of seclusion, and perform various obscene practices.

re brought to a close by the slaughter of an or in
f the event. To this subject further reference must be
another place.

age.—A man is free to marry a woman of his own
er tribe if there is no blood relationship between them
recise degrees of consanguinity are not very clearly defined
a man and woman whose origin can be traced to a common
cestor cannot marry, nor can they without breach of law have
nal intercourse one with another. Breaches of these laws
supposed to be followed by any special evil effects, but
to be issue and the child die, it is attributed to

Since invariably follow
pity is very rare, but
the medicine men
man. Adultery is o
th the knowledge
inflicted by the
but polygamy is
ference of the pre
married. It men
either monogamy
of wives is suppo

father a certain number
ch, this is not purchase in
he woman retains certain

and her husband's

She may not be ill-
limits; she can r

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paid for
tion, whi

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taken
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e matter
in the y
matters

her name; but he is, as a rule, too wise to offer any serious remonstrance, for by so doing he is "throwing ashes" on the head of his parent, and running a risk of being consigned to the care of some old woman of the village till he has learned better manners and how to respect his seniors and forefathers.

In the case of a "chief wife" the bridegroom may not see her, seldom does if a man of tribal standing, till after the whole of the marriage ceremonies are performed; greater latitude is allowed in the case of subordinate or "little" wives.

When the families have agreed upon the union, and the time is fixed for the ceremonies, the bride starts upon her journey, going by easy stages and accompanied by her bridesmaids, and the groomsmen, the number being regulated by the rank of the parties. As illustrating the jealousy with which custom is guarded, I shall quote a short passage from an article by the Hon. Charles Brownlee, than whom no man living is a better authority on native customs and laws. Mr. Brownlee says, "A young Zulu soldier came to the station in great distress. He informed Messrs. Champion and Grout that a few days previously he and a companion were travelling to headquarters to join their

ent; that at a village where they stayed they went into the hut; that there he took a mat, and on unrolling ornaments and articles of female dress such as are used in a royal family. Seeing this he again rolled up the mat and put it aside. It belonged to a girl of the king's household, who had stayed there with her attendants on the previous night. She had forgotten her ornaments. On arriving at headquarters he was arrested for cattle guard, but on his return in the morning he was told by a young man of his regiment that his companion had been put to death for touching the mat and ornaments of a girl, and that he himself was to be put to death for the same offence. A girl, Inbikana, having overheard the soldier's story, at once and told her father, who arrested the man. On being repeated to Dingana, he sent orders without delay for the execution of the poor fellow, and three or four days after I heard some boys describe with great glee the execution of his execution, which seemed to afford them infinite amusement."

Then the bridal party arrive a specially prepared hut is set for them, and attendants are placed at their disposal. On no account allowing—and in the case of persons of rank—for many days of haggling about the precise number, little to be given. When this is decided to the satisfaction of all the parties, a great feast is given, in which friends, neighbours,

no least at one head of c
age is irregl and may be dispu
the proof of legal marriage. W
ing goes on outside, and peopl
(after beer) and milk flowing.
ot strictly confined to her hut
and jealously guarded. The bride
but at the close of the prelimi
are admitted to see and inspec

...born during
...of wives
allowed by law. A frequent cause
part of one or both wives, i
exchange results in children
t common, and has no recognize
ition of the children shows that

is the brother or next-of-kin
children to the deceased, b
with the custom among
be the widow, as a r
amily, and if she has cl
and in great measure th
y return to her own
her children behind, a
ow's rights. If she is
may claim maintenance
if she is not seen to
...the

men of twenty or under married to octogenarians as minor wives, having children with the same regularity that is expected in both husband and wife are young. The "fancy man" is a recognized institution among the younger wives of old men.

One other peculiarity remains to be noted. Should a childless widow return to her own people, and the cattle be restored to her late husband's representatives, and she re-marry, the restored cattle must again be handed over to her friends. In this last case it is not she who failed as a wife, as is evidenced by another man marrying her.

After a man is married he has to be very reserved in the presence of his mother-in-law, whom he may address, but never on any subject beyond what is absolutely necessary. A newly-married woman may not see her father-in-law unless when veiled, and does not speak to him under any pretext. The time during which these restraints are imposed and observed varies according to the rank of those interested, from a few weeks to many months, or till after there are children of the marriage, when the normal manner of life is resumed. There is no such other relations, such as brothers and sisters, brothers and sisters-in-law.

Death.—With the exception of natural decay, old age and infirmity, disease and death is attributed to witchcraft, though it is acknowledged that some with disease in their constitution, and that death from natural causes, which cannot be traced in sheep is supposed to be a natural defect. This opinion is held by the more ignorant. Many diseases in man are beyond the reach of medicine, and can only be accounted for by referring to the spirit world, the ancestral spirit world.

If sickness occurs, the medicine man is called, and certain remedies which he keeps safely guarded to his art; and here it may be explained that many medicine men have acquired considerable skill in treating various ailments. Among the plants from which they draw their remedies, the common aloe, the castor-oil plant, nux vomica, fern root (*aspidium filix-mas*), acacia bark, and many others might be cited. If a cure is effected, the whole affair is completed by the offering of a domestic sacrifice; but should the prescribed remedies fail, and the patient either gets worse, or remains without marked change, the magicians are called, and treatment is a mixture of irrational and empirical as the medicine man proceeds in accordance with reason. Should they be the result of some offence given to the spirits, they are called to appease their wrath. The

Incantation - 27

Superstitions

are carefully collected and burned, and as the
the magician assuming the priestly character
Ye who are above, who have gone before, look
ly and remove our affliction. Ye who see
far, hear. It is blood. We repent. Will
favorable to us who must suffer to you
awaits the magician should the patient
case ends.
It happens to be the work of wizards or

necessary,
of human nature
that causes while
patients has been
characteristic meth
generally been

ions of the
d takes his
about the
believe and
patients of
of the
believe
number

calls for his war in
the execution of the
morning, when a
get and the work
and which he find

number of
in part
wizards
found

ly, torture is resorted to in order to extort a confession. The ordinary forms of torture are: a live fire stick applied to the sole of the foot; suspension by the arms and legs over a nest of ants, or driving pins into the fleshy parts of the body. The accused, after enduring this torment for some time, generally pleads guilty, when a speedy death puts an end to his suffering. Among some tribes, the death sentence is carried out amidst the most protracted sufferings that the executioners can devise.

When a chief dies, men are appointed to watch the body till the whole tribe can be assembled for the funeral. An opening is then made in the side of the house, and the corpse bound up in the leopard-skin blanket which was the late chief's robe of office. The whole tribe then stand in order opposite the newly-made opening, and as the body is brought out they give the royal salute, as if the chief were still alive and reviewing his troops. A grave is prepared, usually in the gate of the cattle fold, another entrance being made for the cattle, and that over the grave closed. The body is wrapped in the royal robe and deposited in a space hollowed out under the bank on one side. The ornaments, rings, armlets, anklets, tobacco pipes, and articles of apparel worn by the departed are placed in the grave, as well as his broken spear, walking stick, and other small personal

When the grave is closed, the whole multitude once again assemble, and bowing low towards the grave, repeat the words, "fare thee well," and then depart in silence. It is not customary on such occasions, but this will fall to another place.

Men are appointed to watch over the grave day and night, to prevent wizards exhuming the body for the purposes of their dark art. It is customary to bury chiefs only, now sepulture is in cases of death by lightning and certain those who handled the body were unclean, and running water before associating with other men food. The ghost of the departed is not feared as

to join the other ancestral spirits, and this is the case. The widow is secluded for some days, and all her old clothing; after she has obtained new garments she may be visited, and resumes her ordinary life. The immediate relatives fast for a day, and are unclean till the priest sprinkles them with a decoction of herbs and flowers, after which they bathe and can again associate with their fellow men. The head of a tribe shaves his head in token of mourning on the day of a chief's death. In many cases the relatives only shave their heads twice, and any one touching the body is polluted, and require protracted

...the priests,
which would be a
loss.

which would be a

own, and no one, not even the ch
ple, compensation. At his d

but he can neither will nor ot

Even should he during t
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e the land at
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r taken from
e remains a
son, theft, an

f taken in the act n

tion of arable land is alw
a new plots either to y
time to time join the
black, but in compensa
the total amount of

tribe, and

a man can pasture his flocks and herds wherever his fancy may lead him, only that the vicinity of the "Great Place," i.e., the chief's dwelling, is reserved specially for his own use. It may also be noticed that the Great Place is never near cultivated land. The chief's cattle are not supposed to be disturbed by such vulgar beings as herd boys, which would happen if pastured on lands adjoining corn fields and ordinary homesteads. The chief has, however, other homesteads besides the Great Place, and at these fields are cultivated and the ordinary occupations of life carried on the same as at any other man's dwelling. To serve the chief as steward at such places is a post of great honour.

Besides the lands used for arable and pastoral purposes, we almost invariably find huge stretches of forest and plain reserved for the purposes of the chase. On these high-lying plains the game is left undisturbed, except during the winter or hunting season. Hunts are then organized on a great scale, and continued for days at a time. On such expeditions hundreds of men and dogs accompany the chief. The ordinary warrior's spear—*Assegai*—is the only weapon. I of course speak of the custom

as became familiar with fire-arms, and the un- that to him who first draws blood, however scratch, belongs the quarry. The animals of rise what is usually described as the "Large

I am not aware that natives ever succeeded in elephants before the introduction of fire-arms, hardly attack, unless indeed he is old and lazy, trouble some about their homesteads. Whole on known to migrate to avoid a place where their quarters. I am not aware of any d with killing lions, though among some us is sacred.

inheritance, though apparently confusing, is better defined than in almost any other jurisprudence. When a man has but one wife his is his heir, and inherits all his civil and material as a tribesman. He is also entitled to a certain proportion of all movable property. The residue may be divided between other members of the family, in any proportions. Others can thus inherit, though in practice this seldom happens. They are supposed to get married and add to the man's wealth, and when past the ordinary age of marriage, is regarded as a failure and become little better than domestic refuse, or so much useless lumber. Theirs is a rather hard lot, where there are more wives than one the position is complicated by a variety of regulations. The first wife may not be, and

...the latter's eldest son who is the first wife's eldest son has a class of subordinate wives. During his lifetime his property is subject to the heir's claims and is equally divided, the heir getting a recognised ratio. When his movable property to others is claimed which his brother, if he lives, and reverts to the one whom he will. When a man has a brother, if his mother's son, rather than the nephew. If one of his father's sons is highest and takes all the rights which...

The wife's relations do not exist or assist of the deceased in any circumstances other than the very

that the youngest son is the heir. One married last, and as her son is one, he, though the youngest of the sons of all his brothers, and is trained and customs and traditions to take his father's place of honour and power often pass from father to such arts as medicine, sorcery, and other occult

is obtain fire by preparing two pieces of wood, one in its side, the other is carefully rammed loosely into the pit or hollow. The pressure essential from what is common is that stick is grasped between the palms and is moved slightly and rapidly, men's motion may not be interrupted, it always burning when possible.

fire as a ceremony with the gods, the power of the gods is in the fire.

but this is pro-

and Religions of South African Tribes.

ably a crude form of a well-known fact which has slowly filtered through the native mind from European sources, and probably introduced in connection with the mystery of fire-arms, round which cluster numerous legends indicating the superstitious fears with which they were at first regarded.

Food.—Almost all articles of food are used, though certain animals are unclean to men though not to women and children, while others are unclean to all. To men, swine, hares, domestic fowls, ducks, geese, and turkeys are unclean, but all wild fowl may be eaten. Women again may eat all the above, except fish, which is classed with serpents and must not be partaken of by any.

Men frequently hunt hares and wild pigs for the use of their women and children, but though they may kill and dress them, they must not be eaten on pain of being polluted. There is no reason assigned for abstinence from the articles named, nor do they explain why they should be unclean. The observance is simply referred to custom, and that none of their people ever did otherwise.

There are no specified times when particular articles of food may be eaten or abstained from, on the ground of such articles being unclean, though for other reasons there are restrictions set, but these will fall to be considered in other connec-

men eat apart, and are waited upon by the who as a rule eat after the men have finished, and habit for men to throw small portions generally sit in a group together, waiting for their turn. The only reason that can be assigned for eating apart is the subordinate position which a woman becomes a chattel after marriage, and she must attend upon her husband and his friends,

and of favour as may be extended to her with

1. To act otherwise involves the taking of a wife, who for the time being becomes the favourite. What has been said of eating applies to ordinary everyday family life, and this habit there is in times of great plenty an important position. Then the principal meal of the day is taken about 12 o'clock a.m., and in public. A little before that time each man in the village sends what has been prepared for him, usually boiled millet and fermented milk, to some shady or red spot, and all slowly saunter to the appointed place where they sit and talk, taking their meal very leisurely, and eating archaizing portions, when different articles have been prepared for them. The women on such occasions usually sit in the huts with their children, and any man or

in who, through accident or as a stranger has no food, share whatever is going. They are, however, supposed to be fed by the village. It is he alone who is responsible for the food. Often the same basin or tub is used to hold the food for a considerable number of persons, and in that case each person takes a large spoon, with which he lifts a portion, eating it with the aid of his fingers. Giving a stranger a separate vessel apart from the family basin would be regarded as an insult. It is to indicate fear of some contagious disease such as cholera. In the evening the meal is taken in the hut, but it differs in no essential from the forenoon meal, except that it is more frequently used at night than during the day, and may be regarded as equivalent to late dining. There is no cannibalism among South African tribes. In fact the Basutos did undoubtedly eat human flesh, but tradition does not make clear; most of the slain in war. Prisoners seem to have been made into domestic drudges. They neither use the blood of a man for any purpose of ordinary food, but both the superstitions of certain of the magician's decoctions of blood being seen and handled at any time must neither see nor touch the blood. It is uncleanness.

recognized semi-religious practice, and is observed by a chief or relative, and on special occasions when great events are expected to happen. When a chief dies the whole tribe fasts, usually for one day, but in special circumstances longer. At the conclusion of the fast the ordinary method of life is resumed without any ceremony. The seclusion of widows after the husband's death is called fasting. This does not imply abstinence from food. Among tribes whose customs are under consideration fasting has been discontinued, but according to their own traditions were observed much more frequently in former times. A larger number of objects, chiefly connected with death, together with exceptional events, such as of a brilliant comet; an eclipse of the sun and its predictions.

In 1857, certain of the South African tribes were afflicted by an extraordinary delusion. I refer to the nature of their fasts, and partly also to the superstitions of the magicians. Shortly before the good deal of the native tribes.

the tribes smarted, and previous wars they had

been heavily handicapped by the necessity of guarding their cattle in comparatively open country, where cavalry could operate with effect. An impostor named Umlanjani predicted that if the confederate tribes slaughtered all their cattle, destroyed every peck of corn, and left the ground untilled in the spring, that at a given time their ancestors would rise and drive the English into the sea whence they came. He further alleged that he saw in his visions the cattle belonging to the ancestors coming in huge droves over the hills, and that after the expulsion of the English, every man could have as many as he had provided folds for before the eventful day. The corn pits also were to be filled without tillage.

This delusion took possession of their fevered imaginations, and a number of tribes destroyed every hoof and left their corn lying in heaps to rot. Feasting, dancing, and warlike demonstrations occupied their whole time. In vain the Government tried to avert the impending ruin. Nothing could be done but await the development of events and prepare for war. Before the arrival of the eventful day which happened to be the morning after full moon, solemn fasts were appointed and observed. Every hill smoked with sacrifices offered to the ancestors, and on the evening preceding the resurrection day a solemn service was held under a hill near the mouth of the great

at which tens of thousands of expectant men were assembled. The sign given by Umlanjani was that on the morning of the full moon the sun was to rise double. During the night not an eye closed. Young men feasted, danced, and carried on high revelry, while the older sat in their huts or walked anxiously about the huge fold prepared for the cattle of the chiefs. As the night wore on, and the moon remained silent and still, under the bright moon and twinkling stars, the anxiety deepened till the dawn of day and the sun's returning once more. As the king of day showed the edge of his disc above the horizon all eyes were turned to the East. Slowly and majestically he rose, but his companion lagged behind, and already black fear entered hearts which a little ago beat high with hope and expectation. Umlanjani declared that they had mistaken the day of the full moon, and predicted triumph on the morrow. The next twenty-four hours was but a sad time. Such food as had not been destroyed was quite exhausted, and as afternoon wore to evening it reminded men of their possible plight should Umlanjani's predictions prove false. But not a murmur was heard till once again the sun appeared in solitary majesty. After that it was in that skilled and daring warriors urged their men to follow them in a bold rush upon the Colony, if but to secure food for a

; nation. Along the frontier every pass was securely
not were hungry and dispirited men likely to force
What followed is ordinary history, with which in these
is we have nothing to do, nor with this delusion except
eating the magician's power, and the occasions on which
fasts are observed.

Occasionally the flesh of the lion or spotted-leopard is cooked
and eaten by men—chiefly warriors, to make them courageous;
but the practice is not general, though found among all the
tribes. Portions of such animals are used by magicians (war
priests) as ingredients in preparing the decoctions used for
rinkling the warriors before entering on a campaign, and
as they then on eating the flesh.

... eating the flesh and heart of a deer
any article of food, but ill-luck is
attributed to a neglect of the ceremony.

—None of the tribes of Southern
Africa and belongs to the cat
and dog family.

... and looking to the condition

those left at home observe many rules dif-
ferent from those which obtain when a man is absent on business or on
a hunt. On a hunter's return he receives the ordinary
welcome of a weary traveller, but there are no ceremonious
receptions in account as in connection with the an-
nual sacrifices. The flesh and bones of wild animals are
treated only as in the case of domestic animals, the

being thrown to the dogs. In the hunting field there are
rules of precedence, but these are based on each
hunter's fame, and are in no way interesting
characteristic. It may, however, be mentioned
hunts assume the form of a game drive, and the
animals are killed in the most indiscriminate fashion, useful

for food. —If we except the Bushmen, all the
tribes towards the south may be regarded as regular tillers
of the soil. But there are few or no superstitions associated with
agriculture as such. On the other hand, the
most sacred of all their observances are connected with
the hunt, and fall during the

connected with
the hunt.

While there are
many superstitions
connected with
the hunt.

... the feast of first-

fruits. This assumes the form of an ordinary social gathering, at which the tribal bard attends and sings the praises of the year and the chief. The court magician is also in attendance, but his services are not essential; he is there rather to receive honour for the care bestowed on rain-making, and the success attending his efforts to save the crops from hail, blight, and floods.

The Tswana, Gwaka, Gdaleka may eat of the new crop before the feast of first-fruits, but men abstain till the crops are well matured, while both women and children may eat pumpkin, maize and millet while quite green. There is nothing peculiar about the fire or manner of cooking first-fruits among any of the tribes. The completion of harvest is an occasion of social festivity; but there are no tribal ceremonies, and each man suits his own convenience as to time. There is nothing peculiar in the custom, and its omission would not be regarded as entailing evil or affecting the next season's fruitfulness.

A magician is occasionally employed to exercise his arts in order to secure a rich harvest, and prevent the destruction of the growing crops by hail or blight. The ceremonies are not elaborate, nor do the people attach very much importance to this particular form of magic. The usual custom is to kindle a fire, and as the dense smoke of green branches ascends, to cast charms—balls, bits of wood or bone, leopard teeth, horse or ox hair, or specially prepared substance—into the fire, and at the same time to invoke the demon of blight, hail, or whatever is feared at intervals a brief incantation for plentiful harvest. Sacrifice is not resorted to; in fact we have never heard of an instance in which this was

season of growth, hail showers are not uncommon, the appearance of the sky indicates the approach of a storm, and the magicians, accompanied by all they can muster, men, women, repair to eminences near the dwellings. They shout and yell in the most frantic manner to divert the storm from its course. Such storms frequently diverge from a straight line, and occasionally part into two or more branches in their course. This is attributed to the power of the magicians. He who has the highest skill diverts the storm from one locality, and should he fail it is because one more powerful than he was working against him, and sent the storm the course it took.

Most amusing incidents could be related in connection with this practice. One must suffice. The summer of 1885-6 was one in which hail-storms were very prevalent. One day a very severe one passed near the writer's dwelling. All the magicians were out, and succeeded in diverting it to the next valley. On

ing day at his in a time to his, expecting
 ited, and began. His chief is indebted
 here which he is in his garden if we have
 visited the garden. I asked where the storm had
 ned the valley where his own paramount chief
 I. You are a capable doctor; you save my
 life and I owe you a debt. What will he say
 turning a conversation. A roar of laughter bu
 den, and my friend, hiding his head in his blanket
 fled precipitantly, leaving the white man for once master of it.

observed in reaping, threshing, winnow-
 re than any special observances or uses in
 implements used in agriculture. I--
 the rain-making might be approp-
 r because lightning men of *hoc grou*
 devoted to themselves, it is better t
 can be grouped conveniently to
 to engage in war great meetin
 after the decision of the Council
 at be prepared for the expedition
 as the strength of the army that
 is men, ordinarily by sub-chiefs and the
 ain proportion remaining at home. It is the pro
 or to prepare them for the field, and this i
 antations, sprinkling, war paint and cat
 as the army is assembled war dance
 ficers take part. Bards sing the
 ie deeds of valour done by them.

provides a glorious return for the expedition. The
 meantime makes a decoction of roots and herbs, with
 sprinkles the soldiers, after which they must have no
 with women till they return from the expedition. I
 departure be delayed and any of them have visited
 the sprinkling has to be redone. The war paint o
 break on the forehead or over the eyebrows i
 is conspicuous. At the opening of a campaign
 made from herbs, but after a battle has been fought
 slain, portions o
 during a probac
 is to give them
 of the bodies o
 heart, liver, and
 doctor administ

of which are mutilated, though

as may happen. Certain tribes deem it necessary to rip up the loins of the fallen. If this is not done they may suffer harm. Then decomposition sets in and the body becomes distended with gas, the magicians belonging to the tribe of the slain are able to work witchery and bring defeat by means of this gas confined in the bodies of the dead. The war doctor may order any noted enemy slain to be decapitated. After this the head is boiled and the roof of the cleaned skull made into a bowl for holding the charming medicine with which he sprinkles the soldiers. War medicine from such a vessel is supposed to have special virtue, and to convey to others something of the spirit and prowess of the original owner of the novel cup. When the army returns, whether as victors or vanquished, there are no ceremonies observed beyond the bestowal of honours for bravery, nor are any ceremonies prescribed to the man who has slain an enemy. The act brings him honour and adds to his reputation, but it does not necessarily imply reward or promotion. Great feasts for rejoicing are held after the mourning for the dead is ended.

The following, from the conversation of a Giaca named Go, a most intelligent man who was attached to the staff of the Hon. Charles Brownlee, who records the incident, will serve to tell some of their war practices. Brownlee says: "Go, by the camp fire, would begin, 'In the last war I was in my. Two other men accompanied me. We went to Alice, Fingoes were on the alert, and had their cattle carefully guarded and we could get nothing—i.e., by theft. I crept up to their camp fire, where one of their diviners was performing incantation and cursing against the Giacas. He had the head of a dead man in his hand, and was shouting and ranting in the most frantic manner, predicting victory to the Fingoes, and pronouncing maledictions against us. He said, 'Little jackal of the Giacas get out of this,' the diviner kept repeating and shouting, 'We assent.' On the following day the Giaca army under Oba on their way to attack the Fingoes. Two ospreys had in the morning flown over the Giaca camp uttering piercing shrieks. This the old men considered a bad omen, and begged Oba to return, and have the army removed as the flight of the birds boded defeat, and indicated that the Fingoes would feast on the eyes of the slain. But Oba refused, and would not be terrified by the omen. This was the first time he was in command, and he was not one, nor would he be terrified by Fingoes. The army was disheartened, and many feared that when they were going to certain destruction. The Fingoes were given, and Quarana, a brave warrior, led

van. From the crest of the hill we saw the cattle with us, minding them, and they advanced towards us, shouting, 'Evil has been said of them,' referring to the night's incantations. When quite near they fired a booting Quarana through the body. He was led back covered with blood. This was enough. The warriors We have been warned by the cephreys; our leader is with this the army turned and fled, though up till Fingoes were in sight opposed to us. Oba did all to stay the panic. He prayed and begged the like men. He called them cowards and women; heads of his flying men. He might as well have a stream after a thunderstorm. He declared he was than be a sharer in such disgrace, and was at off the field by his attendants. Oba, head-ave, led a somewhat chequered life, but he remained a fine specimen of the Gica. I knew him in his old age when he occupied ent location, and often thought how bitter he been when he contrasted his actual position in early life as heir to one of the most ships in South Africa. But as the objects of is not to record historical events, we must say farewell to and his chief, Oba.

III.

Between the coast tribes and those occupying the mountains there are marked differences, and these appear chiefly in religious rites and military organization. Both Zulu have a regular military system, and each regiment is disciplined for particular duty. Among every able-bodied man is a soldier, and there is no division into separate companies, nor do men ever receive special training for purposes. They are all characterized by their religion, and their religious observances tend to regulate their conduct in times of peace and war. The religion of the Bantu, which they date their conduct by, is based on the fact that their ancestors interfere with every man worships his own ancestor and fears their wrath. The clan worships its chiefs and the tribe worships its paramount chief.

belonging to a tribe regard their chief as descended from a common ancestor; the belief welds together the military organization; hence the coherence of the Zulu armies as distinguished from almost any other African tribe. This element of union is wanting when the tribe is composed of clans of different origin. In such cases an able chief may by nice balancing keep them all well together, but there is always a disintegrating if not an explosive element present.

The Bantu have no definite idea of the mode of existence of their deities. In the extreme south they inhabit underground caverns. Farther north they dwell in certain objects or in particular localities. It is characteristic of Africans to drive all thought of the unseen world from their minds, and never mention it when it is possible to avoid it. Their greatest dread is to offend their ancestors, and the only way to avoid this is to do everything according to traditional custom. Under such a system progress is almost impossible. And when to this we add that any man who is mentally ahead of his fellows speedily earns the reputation of a wizard, for whom there is neither pity nor compassion, and whose end is generally a violent death, we can understand how matters have continued unchanged for thousands of years.

We understand how in the short glinting time of peace and at occasionally throws a beam across his village we find the African dancing the same steps as are on old wall paintings of ancient Egypt, the land of his steps which he danced round his chief's *pombi* pot was marched off with galled neck to take his place in a slave market of that country; steps which are the same as then, and may be seen danced any night among the hills and valleys if the moon is full.

All of all the tribes are inheritors of a system of life, which is admirably adapted to the circumstances of their life. It has, like their dancing steps, come down from a period so remote that its origin is lost in the mists of antiquity. Not only its salient points, but its minutest details have been transmitted from generation to generation by the men who make it their business to master it. All trials are

There is perfect freedom of speech, and as any interference, departure from custom is all but impossible.

Common law is well adapted to people in a rude state of society. It holds every one accused of crime guilty, unless he can prove himself innocent; it makes the head of the family responsible for the conduct of all its branches; the village headman is resident in it, and the clan for each of its branches. There is no such thing in it as a man professing to

The higher courts, presided over by the head of the clan, deal with all cases which arise, and are too grave or important to be settled by a village conclave. This court may be said to be always in session. The great man is constantly attended by a number of his councillors, and when a cause arises they sit and hear evidence. The case may not be disposed of. More councillors may be called, and the proceedings commenced *de novo*, and days may elapse before the decision is given.

The highest, or chief court, is presided over by the chief himself assisted by the council of state, and very few cases are heard by him in court except those of the gravest character. Treason, witchcraft, murder, homicide, rebellion, and overt acts leading to war, are among the causes most frequently decided upon by this tribunal. If conviction follows trial the chief may sentence a man to capital punishment or inflict a fine. In such state trials the power of the chief is all but absolute. The councillors take the chief part in examining witnesses and bringing all the facts to light. They are then asked one by one to give their opinion, and the chief pronounces judgment. This is almost invariably in accordance with the opinion of the majority, but there is

in their system of jurisprudence to prevent its being opposed to the opinions expressed by the greater number. weight is given to the opinion of the older councillors higher in rank as a rule. A paramount chief cannot be

by court, unless, indeed, one is invented, as in the case known English monarch. There is, however, no case where a chief has been either tried or deposed, except as old age a regent may be appointed.

of government, though in principle the same, is somewhat differently among the coast tribes and inland. Among the former the chief and his council of state as a rude hereditary parliament, and to them any representation may be made by duly accredited deputies from the various clans. Among the Basutos, on the other hand, there is a

yearly gathering, called a *Pitso*, of the whole tribe. All the questions of tribal policy are there discussed, and submitted to a popular vote, and it is the duty of the executive to effect to all decisions arrived at by the *Pitso*. In Zululand the details of administrative government are greatly modified by the existence of their military system. The interests of the tribe are supreme, and must be considered before all things else.

Those who render distinguished service are frequently raised to the rank and dignity of councillors and sub-chiefs, or heads of clans. With this sole exception almost all offices of honour and of trust, under the government are hereditary from the chief downwards.

[an African chief is in many ways practical though usually guided by the advice of his
 town that the chief is above all law. He
 has taught wisdom. A chief who disobeys
 the head men of the tribe comes to his death
 upon the scene. These gradually gain
 a successful revolt quenches the auto-
 nomous son is placed in power, generally
 uniting clans, who form themselves into an
 the highest hereditary chief among the
 confidence between one tribe and another
 must none. Fear of rivals and of intrigue
 before the chief's eyes, while his
 are always jealous of any exercise
 of power. It is this mutual jealousy an
 intertribal wars, and o
 increase them, diminish
 le of the pale face
 against the storms
 of go
 ardly any such, w

but this though regarded sacred
 nothing from it is regarded as an
 duty and character.

and Tembus the salutation
 —giving his title rather than his
 "Hail, Chief." The Zulus salute the
 with the word *Bayete*, which means
 is referring to enemies, or rather sur-
 rendered give them over to the army for des-
 troy of salutation between man and
 "You, and I am glad," the response is
 "I will and remain prosperous."
 frequently when men are about to part
 is very large, and their

Arabic—Numerals are used for units, and many
 for which *Ikulu* is the term, 1,000 is *Isani*
 1,000 *Igidi*, 1,000,000—a great multitude.
 —The *Titi* are really indefinite terms, nor do
 they have any clear conception of numbers beyond
 tens and perhaps tens of thousands. The fingers are
 used for counting. The little finger of the right hand
 is one, and so on, proceeding from right to left,
 in pronation. The thumb of the left hand extends

six. Both palms clapped together means ten. The feet and toes are never used for counting. Numbers above ten are always expressed in words.

Measurement of Time.—Time is measured by days, moons, and years. The time of day is told by the position of the sun, dawn, sunrise, early in the day, noon, afternoon, sunset, and twilight. At night they reckon by the position of well-known stars, and can come wonderfully near the time as reckoned by other means.

The month, which consists of the twenty-five (?) days during which the moon is visible, is reckoned by her phases. The days of darkness between the old and new moon are not counted; the moon has gone to sleep. The beginning of the new year is determined by the budding of certain trees and shrubs, after which spring operations commence. They calculate only twelve lunar months for the year, for which they have names, and this results in frequent confusion and difference of opinion as to which month it really is. For example, there is the month of the cuckoo when first heard; the month of the *Erythusia*, when it blossoms; the month of great dust, mid-winter, and as all these events may vary in time, the astrologers are frequently at sixes and sevens as to which moon they have.

No confusion is always rectified by the first appearance of the before sunrise, and a fresh start is made and things or a considerable time, till once more the moons set, and reference has again to be made to the stars. given to the moons are descriptive less or more, e.g., *Nwobe*, green, indicate the first appearance; *Purufa*, September, cattle licking green grass; October, footpaths being covered with grass; *Hlo-ahanyu*, time for looking for first-fruits; *Hlangula*, is of falling leaves. There are no ceremonies at the commencement of the new year, and the solstices have either not observed, or no regard is paid to their recurrence. No real means of recording time exists, and in dark or cloudy weather they are quite at a loss to tell the time even approximately.

ly.

Songs and Dances.—The principal amusements are the following—

Tshotsha.—In this game a number of young men collect and are taken, each leader calling out men alternately. One

then goes to a hut where a number of girls are assembled, and a *dikari*—a woman of easy virtue—as sentinel on either side of the door. On entering they give their scanty goat-skin garments to the girls to hold, and form a circle kneeling. They then go through most violent contortions of body till perspira-

22

-This may be regarded as a
ant. The cattle are trained for
much excitement as turf event
attle are taken to a distance
When all is ready, young men,
do of them start them off at a

with riders is common, and bets are frequent. Whether this species of sport has been introduced into Africa from European sources I do not know.

Other and more elaborate dances accompany the weddings, the arrival of young men at puberty, the first-fruits, and the rejoicing connected with victory and the falling of rain after long drought. Witch doctors are performing incantations till they are in a state of insensibility, occasionally, by accident or design, and in this condition remaining insensible for some time. They are supposed to make revelations to them, and to acquire the art of assuming a semi-romantic condition with very little trouble. These are the best doctors.

Magic and Divination.—So-called witchcraft is rampant, and those who practice the art of witch doctor have enormous power and occupy a very large place in the social life of the people. There are witch doctors of both sexes, and the profession is entered by the candidate first feigning sickness and refusing to eat or move, or even converse with others. A doctor is then sent for who makes a careful examination of the patient. If it appears that he is suffering from delusions or any form of mental hallucination, steps are taken for his recovery if possible. If, on the other hand, the doctors conclude that he is preparing for the office of doctor, they declare that he is inspired by the spirits and that he must be left alone. He thereupon adopts singular and peculiar habits, assumes a fantastic form of dress, abstains from certain articles of food, professes to have dreams and see visions, and presently becomes a full-fledged doctor, with practically unlimited power over men's lives and property. They are supposed to be able to effect cures, and as disease and disaster are caused by wizards and witches, the discovery of the criminal is a more important function than the administration of drugs.

When any one, say a man in middle life, falls ill, his friends relations go to the witch-doctor's kraal, and sit down close to a waiting attitude. By-and-bye the doctor appears, sits a distance, and takes a pinch of snuff. If the tobacco, he knows it is but a casual call and he has no conversation. If they do not ask, he scent into the house and brings out a dry hide and these he throws down before his visitors and says, "Come about a child." And they, beating softly with the sticks, reply in a low voice, "We agree." He proceeds, "You have come about a woman." The thing is continued, and the same reply is made as before. The next remark is, "The man you have come about is very ill," beating loudly, reply as before, twice repeated. On this our friend proceeds till he has discovered all he wishes to know about the man, his family circumstances, and history. Then this he sits in silence for a long while and then says softly, "You are being killed." When asked how and by whom he replies that he cannot tell, they must return the following day, and perhaps the spirits in the interval will reveal to them the author of the evil. Meantime they are to bring a beast in as a fee, or there will be no revelations made to him. The doctors then retire, and when they go home they give a hint as to whom they suspect, fixing on someone who has a grudge against the patient. This friendly neighbour goes at dead of night and tells the doctor. He is now in a

day the beast is driven to the doctor's, having warned the chief of what is appointed place fully armed; attendants neighbours being compulsory. The knowledge of his doom, with the cavalier be casually asked, "What does the man deserve?" and he of course replies, "Ival, they find the doctor's men all up theirs, to the men of the village themselves in a semi-circle, the chief the custom varies among different doctor communicates the accused's turn tells his war minister, and the chief. Among the Bacas on the other long standing in the middle of it rushing up to the doomed man, exclaiming he bewitched so and so." He then follows, and all the people jump up to follow. He must not move, nor may any of his friends will ask where he got and the doctor from the safe shelter of his hut, "He bought it at such a place for so one is allowed to plead the cause of the man his friends are disarmed and cannot strike a blow for would, and the poor wretch, utterly confused and and unwilling to die alone, as often as not accuses is of assisting him—denial is utterly useless—and he is at once isolated; but he has the right of ordinary may be acquitted. The chief may refuse to have it executed, in which case he is permitted to leave the tribe to live. If the sentence is to be carried out to depart and is murdered a short distance from meeting, on his way home. It sometimes happens, when ordered to leave for his home, is a pair of heels, in which case he is of course safe on his journey.

Doctors are at the head of the profession chiefs in the tribe. They are thus entitled to a regular court, as in the case of Medicine men are quite a subordinate enough in point of fact very useful men.

Doctors.—These are a shrewd, clever class and accurate observers of all indications. They are able to tell with a considerable degree of accuracy what is likely

If spring rains are later than usual a black ox is sent to the doctor, who being warned of the approaching visit, sits in his hut covered with mud, with which he smears himself instead of the ordinary every-day fat. If there are no indications of rain, he may either direct them to come again or order a meeting of a tribe. There is then much eating, drinking, and dancing. Harms are produced and mystic ceremonies performed, and a day is named before which rain is to fall. Should this prediction prove correct, the doctor is liberally rewarded, but if it should not, he must explain his failure. This is always accounted for by some one in high authority working against him; when passed he may name the chief wife of the paramount chief or a mother. As these, under African native law, cannot be put to death, the rain-maker cannot bring rain, and is either excused or condemned according to the humour the chief happens to be in at the time. Chiefs have been known to sacrifice every doctor belonging to the tribe in one huge holocaust.

If too much rain falls, the doctor, accompanied by a large crowd, repairs to the house of a family where there has been no rain for a very long time, and there burns the skin of a coney. He shouts while it burns, "the rabbit is burning." This cry the whole crowd continue shouting till exhausted. If it stop the rain it is given up as a hopeless case, and men go on with such resignation as they can till nature relieves. The rain doctor deals with hail and the rest as detailed in another paper. One important thing is, When he sees the hailstorm advancing, he fills his mouth with his own urine, and thus he meets the storm and, waving his arms frantically calls out,

"O those who protect persons and property, help! When a man is killed by lightning, till the doctor arrives. He removes the dead, and people with 'medicine.' He then orders a singing for a dance. Cattle are killed in sacrifice and so on. Till this last ceremony is performed all in the village are unclean. They cannot visit their neighbours, nor can their neighbours come near them. The presence of the dead must show no sign of mourning. It is even has taken its own," and mourning would be to it, and might bring punishment. Heaven in this sense is "the dweller in heaven," or in other words, "the Great Spirit of whom nothing is known."

Nothing unusual is an excuse for calling the magician, or the animal indulging in gambols of an unusual kind must be explained. An osprey flying over an army is waiting

Presents.

It bodes defeat. The Abyssinian
se foretells calamity or death. A fit
a sure sign of bad luck. If
causes of death and disaster
it, and only through his prompt
evils be avoided. In this way
African comes to be lived in.

shadows of disaster or death
le or while tending his flocks
in and valleys.

28th, 1889.

F.R.S., President, in the Chair

eting were read and signed.

1 of Dr. RUDOLFO LIVI, of Rome, as an Honor
of the Hon. JOHN ABERCROMBIE, of Chapel St
as an ordinary Member, was announced.

resents were announced, and thanks

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Nyelvtudományi Értekezések, xiv, 8-10;

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Ungarische Revue, 1888, 7-10; 1889, 1-3;

Naturwissenschaftliche Berichte, Band vi;

Supplément au Nr. 2, 1889, de "La Revue de l'Orient."

From the **SOCIETY**.—*Journal of the Society of Arts. Nos. 1930, 1931.*

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—*Revue Scientifique. Tom. xlv. Nos. 20, 21.*

C. HADDON exhibited a large collection of objects of interest which he had brought from Torres Straits, in the following Paper:—

RAPIRY of the WESTERN TRIBE of TORRES STRAITS.

C. HADDON, M.A., Professor of Zoology, Royal College of Science, Dublin.

[WITH PLATES VII, VIII, IX, AND X.]

INTRODUCTION.

In the summer of 1888 I went to Torres Straits to investigate the vegetation and fauna of the coral reefs of that district. Very soon after my arrival in the Straits I found that the natives of the islands had of late years been greatly reduced in number, and that, with the exception of but one or two individuals, none of the white residents knew anything about the customs of the natives, and not a single person cared about them personally. When I began to question the natives I discovered that the

first acquaintance with the

ALWAYS, NEVER, SOMETIMES, NEVER, NEVER

sciously on either
mination. But, further
nology was a gain for
undertaken similar enquiry
ulty there is in acquiring
events. Even among
educated people who
ts they have seen long ago,
r sequence, or who can
an intelligible and logical
of their sacred legends.

error when

athered is now passed
fluently of translating
ally in the stone age, in
the nineteenth century,
medium of the jargon-
error has crept into my
my best to keep it out, but on
is ink

never

course, checked the information by asking other men on the same or on a different island.

The following paper deals with the Western Tribe, and only occasional reference has been made to the Eastern Tribe, or to the neighbouring peoples of New Guinea and Queensland. The count has already assumed such proportions that I have purposely refrained from extending it by comparisons with allied nationalities. My friend, the Rev. A. E. Hunt, the resident missionary at the Murray Islands, has promised to investigate the ethnography of the island of Mer, and so for the present I refrain from publishing the information I have collected about the Eastern Tribe.

It will be observed that I have quoted largely from J. Beete Jukes' "Voyage of the Fly" (1847), and from J. Macgillivray's "Voyage of the Rattlesnake" (1852). Extracts will also be found from W. Wyatt Gill's "Life in the Southern Isles," and from other sources, all of which are acknowledged. I have in almost every case given the exact words, and I believe I have recorded every fact of any importance concerning the Western Tribe of Torres Straits which has been mentioned by these authors. Even when I have observed the same fact I have invariably

not, instead of repeating it in my own words, under travellers might have all the credit of and which were often made under difficulty. ones are placed within square brackets []. at pleasure to add my testimony, superfluous to the accuracy of my distinguished predecessor Macgillivray. While I am on this subject I thought forty-five years have passed since and the Murray Islands, the geniality of that he is still held in remembrance by the was astonished to find that the interchange of him and a young Erubian named Dudegab was of this day, for when I mentioned Jukes' name, was immediately related to me, and the old anchorage "Fly" was pointed out.

following communication consists of two parts, the first is a general account of the manners and customs of the Western Tribe, and the second describes particular customs on islands or groups of islands. My imperfect knowledge of the cases prevents me from stating definitely how far many of the facts are confined to that island from which I obtained the information, or how far they are common to the whole tribe. When generalize from insufficient data, I have preferred to state them as being insular in character. In some cases, at least, the proximity to New Guinea on the one hand or to

has had its effect on the customs of the
 real part I have followed the order of the
 culture, of that invaluable little book,
 "Anthropology," compiled by a Co-
 sociation. When I have presented
 I propose to consider the physi-
 cians as a whole. I am also indebted
 to an excellent list of "Questions on the
 region, &c," drawn up by my friend
 (Journal, XVIII, 1889, p. 451), also pub-

lowing vowel pronunciations:—a, as in
 "date"; e, as in "debt"; i, as in
 "it"; o, as in "own"; u, as in "on";
 au, as in "now".

is always given on the first
 not necessarily afterward
 express my gratitude to the
 les granted to me, and to the
 lay Island, Hugh Milne
 John Douglas, C.M.G., who
 the kind intention of their
 friends I am also much indebted, notably
 Revs. E. B. Savage and A. E. Hunt, and

OF THE CULTURE OF THE WESTERN STRAITS.

of writing was entirely unknown
 means of preserving the memory
 of fact, still is. The people
 repetitions are not in the form of
 those I collected any religious
 such, probably, do exist, as I understand
 in the Legend of the
 (one of the Murray
 as the legends. There is no
 that the memory of events was
 but I believe a record of dug
 it, was commonly made by tying
 the point of an arrow for ever
 at Mer kept to record the
 man's brother, and I obtained
 his bundle: ("kupa") which revealed the

atnatory successes of various men. There was a friendly rivalry between these men, "all same as race," as they expressed it. (See Pl. IX, fig. 5.)

There is no system of chronology, and the natives have no idea of their own age or even of that of their young children. When I asked a father how old his son was, a little boy of four or five, trotting by his side, he replied, "I no savvy, he ten? he hundred?" And he would cheerfully accept any numerical statement suggested as being the correct age. Their old limited range of numerals (see subsequent Section on Arithmetic, p. 303) is probably answerable for this. The Muralug natives keep up the remembrance of Gi'om, the white woman (Mrs. Thomson), who lived there over four years, forty years previously (see Macgillivray I, p. 301). Jukes is still remembered at Erub and at the Murray Islands, as well as the fact that he changed names with Dudëgab (Jukes I, p. 178). This was in March, 1845. No date beyond the lifetime of a living man can be relied upon, and even that only relatively. Thus, an old man would point to a boy and say he was as big as that when a certain event happened. They have no idea whatever of time, and all count is lost of a previous generation.

know of no tradition concerning their origin or their connection with other tribes, except a hint in certain legends, "Malu," and "Yawar," of the carrying of a higher the Eastern Tribe, but this I shall refer to on another

two distinct tribes in Torres Straits, the longitude dividing them. As there is no native name for me to term them the Western and the Eastern Tribes, a Tribe is variously sub-divided. Macgillivray records "as," but it is my belief that he has exaggerated on account of the custom of the natives to call an island by the name of that island or of a group. He says, "The Kowraregas inhabit the Prince of Wales group; the Muralugas and Italegas divide between them Banks Island; the Badulegas possess Mulgrave and the Gumulegas the islands between the last and sea; the Kulkalegas have Mount Ernest and the Massilegas reside on the York Isles, and I found that the natives of all the islands the inhabitants of each of the following groups of as being distinctly allied: (1) The Prince of Wales' and Moa; (2) Badu and Mabuiag; (3) Boigu, Dauan and and (4) The remaining islands (Nagir, Tud, Masig, If it be considered desirable that distinct names should be given to those groups, they might be severally called (1)

A. O. S. 1888. — *The Ethnography of the*

g; (2) Gumulaig; (3) Saibaruile; (4) Kulkalaig.¹ be expected in an archipelago there are slight different customs in the different islands, but they a language. So far as I know they do not origin, nor do they trace their descent in mentioned above they name the people of a place, as, for example, the Badulaig inhabit inhabitants of Mabuaig are called Gumulaig, of an old village in that island.

I heard any suggestion of former migrations. own to all that their numbers are decreasing we that their forefathers were more renowned s, but I should hardly consider that they thought, except in such matters as sorcery and power is. All this is "finished" now. I believe that their "old men" really possessed the powers wledge of all the old ceremonies is far it has irrevocably gone, and also the icles used in some of the ceremoni ed as toys: the *bigs* and *pididrong* (s g) are examples of the former, and e latter. Cat's cradle (*womer*), too, t, practically, it already is in the

sible to say whether real or mythical, al customs and arts ("culture heroes, e legend, as, for example, Yawar, w d method of cultivating yams; Sesa

(or platform from which th dugong as an article of certain funeral customs, and so on ional heroes is handed down,

in these, I believe, there is thical additions. Several — relics of

his shell-trumpet, and the ruments are to be found on of legends connected w stones and rocks, and e will be seen on referen s, the Six Blind Brothers o addition of a flood.

¹ I have adopted the term "people," as I found it used by the natives of the islands.

ave noticed a decided tendency to count by twos or couples.
an example of the differences in the vocabularies of the
language taken by various travellers from different islands,
give all the variations I have collected of the two
numerals.

1. wārapūne	...	Macgillivray (II, p. 301), for
2. quassur	..	the Kowrarega [<i>sic</i>] tribe.
3. quassur-wārapūne	..	
1. warabon	..	Wyatt Gill (p. 225), for the
2. augosa	..	Western Tribe as a whole.
3. warabon-augosa	..	
...	..	D'Albertis (II, p. 387), for
...	..	Manig (Yorke Island).
...	..	
...	..	Sharon MS for Saibai.
...	..	
...	..	Muralug (A.C.H.).
...	..	
...	or	
...	..	Moa, Badu, Mabuiag, Nagir
...	..	and Tud (A.C.H.).
...	..	

“...”, stood for five objects; an
al, for ten, but I do not think they w
ing composed of five twos, i.e., akasa, a
I had “wāgetāl wāgetāl” given me
Moa man.
a Muralug they originally counted
the only island where this occur
alian influence. I also obtained

of 3rd digits, epke (middle ones); index fin
w (big one); wrist, kīkīkotāne; elbow
MS.): armpit, kēkēni;
neck, kēkēni; and then passing in the
ing with the little finger, with the same;

age there are also only the two numeral
sty, or a lot, is some or some.
livray (II, p. 301), the Guidang tribe at
ness, kēkēni, dōne; but he is “inclined
no words to express definite numbers
sed for higher numbers, and occasionally
“The numerals used by the aborigines of Cape
... the whole (hand), i.e., five.”

ina nabigēt, or *nabiget*, for five, *nabiget nabiget* for ten, *nabikoku* for fifteen, and *nabikoku nabikoku* for twenty (*gēt*=hand, and *koko*=foot). *Nabiget* can hardly be said to be the name of the number five, but that there were as many of the objects referred to as there are fingers on one hand. I further had from the same island *maura* for 100 and *kai gaza* for 1,000 (this is probably *kai ras*, "a great lot,") but these and several other numbers I do not believe in.

Ino is sometimes used in connexion with one, *ipal* with two, and *ita* with three, but I do not know in exactly what way. Thus one Muralug informant gave me 1=*ino urapuni*, 2=*ipal ukosa*, 3=*ita badagili*, 4=*ipal ukosa ukosa*, 5=*ipal ukosa ukosa ino urapuni*, and 6=*ipal ukosa ukosa, ukosa* or *warabadagili*.

They usually count by their fingers, and as a rule begin with the little finger of the left hand. I believe this was the original method. There was another system of counting by commencing at the little finger of the left hand, *kotodimura*, then following on with the fourth finger, *kotodimura gorngozinga* (or *gurusinger*); middle finger, *il get*; index finger, *klak-nētoi-gēt*; thumb, *kabaget*; wrist, *perta* or *tiap*; elbow joint, *kudu*; shoulder, *ngukwolk*; left nipple, *susu madu*; sternum, *kosa, dadir*; right
le, *susu madu*, and ending with the little finger of the right
le. (These names were obtained at Mabuiag, those used in
and Muralug are somewhat different.) This gives nineteen

ions, of which eleven to nineteen are merely inverse
s of one to nine. The names are simply those of the
he body themselves, and are not numerals. In my
his system could only have been used as an aid to
like using a knotted string, and not as a series of
bers. The elbow joint, *kudu*, might be either seven
and I could not discover that *kudu* really stood for
ose numbers, but in a question of trade a man would
how far along his person a former number of articles
and by beginning again on the left little finger he
the actual number. Only the old men are
ted with this method, and, in fact, few of the younger
ve any idea of their own mode of counting, our system
and everywhere. I have experienced a sur-
mount of difficulty in getting any reliable information
apparently simple subject.

W. Wyatt Gill says (p. 225), "Anything above ten the Straits Islanders count *visibly*, thus: touch each finger, then
rist, elbow, and shoulder joint on the *right* side of the body;
touch the sternum and proceed to the joints of the *left*, not
ting the fingers of the left hand. This will give seventeen.
his suffice not, count the toes, the ankle, knee, and hip joints

right and left). This will give sixteen more, the entire process yielding thirty-three. "Anything beyond can be enumerated by help of a bundle of sticks."

All the numerals now in use are borrowed from the English. Simple arithmetic is taught in the Mission Schools, and the ciphers are all introduced.

Medicine.—Disease and death were always supposed to be the result of sorcery, and cures were also credited to the skill of the "*maidlaig*," sorcery or medicine man. Certain vegetable products are still used for some specific complaints, for example, the bark of the root of a particular bush was chewed at Tud for diarrhoea. Some of these bush remedies are known to all, but *lakdehng* were acquainted with several plants

to be the usual diseases to which the rh, cough, weak eyes, consumption or sc, elephantiasis, boils, ulcerated sores, yphitis have been introduced; the two death of a large number of people some islands, such as Muralug; in

season, it probably always, more or less swampy. Macgillivray (II, p. 1, a man under treatment for "ague."

round while several men in succession

at knees and kneaded it with their

aced him close to a fire and sprinkl

gious perspiration broke out, denoti

f the attack." He also says the fi

as it is supposed to remove former

sores prevalent among children." }

tight compression of the head duri

ates (II, p. 31), "scarification of th

node of treating local inflamm

nd that it was employed for alim

n. In some cases the body is st

idly mistake the cicatrices for ti

ntinues—"Ligatures are also used, as

forehead to remove head-ache."

to MacFarlane, "The treatment of
s; they are mostly left to their own
armley and Murray), cared for at Sh
lace to place. A needle made from
always taken to battle in a small ham
for sewing up wounds." (M.,

"Boils on various parts of the body, even on the head, are prevalent, especially during the rainy season, when the food is of a poorer description than at other times. Children are most subject to them, and I have more than once seen them so covered with offensive sores as to be rendered most disgusting objects" (Macgillivray, II, p. 31).

I believe the natives rarely carried about with them the bones of their deceased relatives, although they often kept the skull of a relation in the house in a basket, and that of an enemy outside the house or in some public place. An exception to this general statement is recorded by Macgillivray for the island of Muralug (II, p. 32). Some time after death, the head of a husband "is removed and handed over to the custody of the eldest wife. She carries it about with her in a bag during her widowhood, accompanying the party of the tribe to which she belongs from place to place." I gathered that the custom of keeping the skulls of relatives was mainly on account of affection, but such skulls were also used for divination (see the Myths of Sesere and of Upi). Again, on first removing the skull from the body it was often used to divine the Maidélaig

caused the death of the deceased (see funeral customs in

procured a dugong-charm, the efficiency of which was in addition of the fibulæ of the Maidélaig who

it. I never heard of human bones being used to avert sickness or other evils, or as remedies for a legend of Tiai, we find that his mother carried round her neck, the bones of her baby boy, for do not know.

and enclosures round them are always kept an and tidy.

es of Food.—The chief food substances are fruit, sweet potatoes, sugar cane, "*biu*," the larvæ and large Longicorn beetle, crustacea, shell-fish, numerous a monitor ("*iguana*"), birds, and dugong.

varieties of yam are cultivated. Macgillivray gives names of half-a-dozen kinds, and wild yams are also eaten.

9, Vol. II, Macgillivray says: "Not less than nine kinds of yams and yam-like tubers—including the stato—are cultivated in Torres Straits, and are specially gnished by name." Yams and sweet potatoes form the e farinaceous food of the people. Sugar cane is only met a few islands. Macgillivray (II, p. 26) thus describes

paration of *biu*, "When the rains set in the *biu* the principal support of the Cape York and Muralug

This is a grey slimy paste procured from a species of *ve* (*Candelia* ?), the sprouts of which, three or four inches

ing, are first made to undergo a process of baking and steaming — a large heap being laid upon heated stones, and covered over with bark, wet leaves, and sand — after which they are beaten between two stones, and the pulp is scraped out fit for use. It does not seem to be a favourite food, and is probably eaten from sheer necessity. Mixed up with the *biyu* to render it more palatable they sometimes add large quantities of a leguminous seed, the size of a chestnut, which has previously been soaked for a night in water, and the husk removed, or the tuber of a wild yam (*Dioscorea bulbifera*) cut into small pieces, and well steeped in water to remove its bitter taste." Biru is referred to in the story of Gôhâ; it was eaten throughout the Straits.

The banana is cultivated in some of the islands, but it nowhere forms such an important article of food as in the Eastern Islands. Many islands are also devoid of the cocoa nut; in the islands where they do occur every tree is owned, and most of the inhabitants of an island appear to know the name of every palm in that island.

Among the edible fruits of Cape York I may mention the *betel*, a species of *Artocarpus*, or cashew nut, which after being roasted to destroy its acidity, has somewhat the taste of a peach — the *clark* (a species of *Walterdia*), the size of an apricot, and mealy, with a nearly insipid but slightly mawkish flavour — the small, red, mealy fruit of *Mimusops Kaukii* — and the *apiga* (a species of *Eugenia*), a red, apple-like fruit, the pericarp of which has a pleasantly acid taste. The fruit of two species of pandanus yields a sweet mucilage when

put in water in which it has been soaked, and beaten up between two stones, and the kernel is eaten" (Macgillivray, II, p. 27).

The *rodus* of a vine-like creeper with large leaves are eaten with *biyu*" (*l.c.*, p. 289). The *rodus* are usually roasted before being eaten.

Several varieties of banana: at least one

I was told, by South Sea men. The

embers of a wood fire

it is often eaten with the kernel of oil

o (*biu*) was occasionally imported from Da
have heard that an inferior kind of sago was occas

be pith of a local cycad. The sago palm "

by the winds and currents [from the Fly
south as the Prince of Wales Islands, when

out the soft spongy inner wood, wash it well with fresh

it has

pulp, separate the farinaceous substance

which falls to the bottom of the vessel, and bake it as bread" (Macgillivray, II, p. 62).

The edible roots are yams, sweet potatoes, and according to Macgillivray (II, pp. 288, 290), those of the *Hellenia coerulea* (eaten raw), of a kind of rush, and of a convolvulus, *chavarr*.

As there were no indigenous land mammals, milk and ordinary flesh food were unknown. The dingo was formerly domesticated in some islands, but I never heard of its being eaten. I think it is doubtful if the pig was introduced into the islands, or at all events it was not general.

I could not say for what class of food there is a marked preference unless it be the flesh of the turtle and dugong, as these were very eagerly sought for, as well as the eggs of the former. The larvæ of a Longicorn beetle are considered delicacies. Marrow is unknown, as neither the turtle nor the dugong have it in their bones. The porpoise is not eaten in some of the islands; a Muralug man informed me, "Me fellow no eat him, he too fat; Mäsig, Pourma (Pärema) and mainland (Australia) man eat him, because he no savvy spear *düngal* (dugong)." The blood of the turtle is eaten.

I have no information concerning any prohibition from eating special kinds of food during certain seasons, except in the case of lads during initiation. Thus in Muralug I was told the lads had to abstain from all animal food, including mollusca and istacea. At Nagir I was informed that the Kerngë lads were allowed to eat certain fish, *Paza* and *Takam*, nor "the red inside craw fish" (i.e., stomach, &c.). Flesh and fat may be but not "guts" (*soroi*). I doubt if my Nagir informant is correct. Members of a clan might not eat the totem clan, with the exception of the dugong and turtle clans. Macgillivray says (II, p. 10): "As a further proof of the low position of the (Muralug) women, I may state that it is upon them that the only restrictions in eating particular sorts of food are imposed. Many kinds of fish, including some of the best, are added on the pretence of their causing disease in women, though not injurious to the men. The hawkbill turtle and its eggs are forbidden to women suckling, and no female, until after child-bearing, is permitted to eat of the Torres Strait fish." In the story of Gelam it is stated that his mother ate

Torres Straits pigeons. I do not know whether she was supposed to be past child-bearing, or whether this custom was confined to Muralug, and thus possibly due to Australian influence. There are no storehouses for food. I never heard of unusual substances being used as food, such as bark or clay, in times of scarcity, nor of any invigorating substance being eaten before undertaking any arduous labour. I do not know that salt,

ices, or any condiment are mixed with their food. Honey is often when obtainable, but I do not know whether it is used to sweeten other food; the same holds good for the sugar cane. No whets to the appetite are in use, and there is no difference in the food of various individuals.

Fire.—Fire was obtained by means of the simplest form of hand fire-drill; now wax matches are invariably used. (This subject is dealt with more fully later on.)

Modes of Cooking.—I believe fruit is the only article of food which is eaten raw. Fish, after being gutted, were dried in the sun or sometimes smoked. Strips of dugong meat, with the bladder and skin attached, are also smoked, making according to some white people a very good bacon. I have seen such strips hanging on a line out of doors, which was prepared in the dry season for use during the north-west season. According to

(II, p. 25), the blubber is esteemed the most but even the skin is eaten, although it requires to be eaten.

Concerning the turtle he says (II, Torres Strait Islanders are accustomed to dry the

them with food during their voyages. The meat is sliced, boiled in a melon shell, stuck upon

dried in the sun. Prepared in this manner it will last weeks, but requires a second cooking before

account of its hardness and toughness. The fat on the surface during the boiling is skimmed off and of bamboo and turtles' bladders, being much

I have even seen the natives drink it off in it as much gusto as ever alderman enjoyed his

Meat is not salted. Dugong and turtle meat are roasted over the fire, often eaten half raw. Unripe bananas are

the ashes of a fire. No forks, spoons, or knives are in use: a kind of clam called "*aku*" spoon or ladle; blood, grease, &c., is collected

was formerly cut with the bamboo. In Torres Strait has seen dugong so cut up (see also Story of Gillivray says the Muralug people used a

purpose. At the present time steel knives

Meat, tubers and roots were formerly boiled in melon or scoop shell, *Oymbium*, or in the *bu* (a tri-lobed *proboscideiferus*); iron pots are used.

The native oven, as described to me as made of stones and leaves are covered over with earth (II, p. 25). This oven

is of simple construction; a number of stones, the size of the fist, are laid on the ground, and a fire is continued above them until they are sufficiently hot. The meat is then laid upon the bottom layer with some of the heated stones above it, a rim of tea-tree bark banked up with sand or earth is put up all round, with a quantity of bark, leaves, or grass on the top to retain the steam, and the process of baking goes on. This is the favourite mode of cooking turtle and dugong throughout Torres Strait, and on the east coast of the mainland I have seen similar fire-places as far south as Sandy Cape." Hollow trees, ant-hills, or such like are not used as ovens. Hot stones are not used for boiling.

I do not think that rings of clay or other material are employed to keep the cooking vessels upright. There is in almost every house a circular wire framework suspended from a rafter, on which fish and dugong and turtle meat are smoked, and which may also support some shell vessels. Probably something of the same sort was formerly used, for we find that according to the legend, Tiai's mother erected a light framework (not) over the fire on which to dry and smoke her fish.

Cooking is carried on either inside or outside the house, more generally the former, but the oven was always outside. I know of no kitchens. So far as I have seen the cooking is done by the men only, excepting in the bachelor's quarters, and when men go expeditions in their canoes. I have never heard of cooking ceremonies or superstitions. The food for the men and women is cooked together. Fruit and vegetables are never cooked with sugar or by pickling. I never heard any tradition of the origin of the art of cooking. Kitchen middens formed now, nor did I come across traces of ancient mounds. Dugong and turtle skulls and bones were and often still are, massed in heaps or put out in rows, as this was merely to keep count of the number of animals killed in any one season. They were subsequently distributed, soon crumbled away.

Drinks.—The only drinks formerly used were water and the oil of the coco-nut. No fermented liquor or spirit was known. Possibly Kava¹ may have been made, but I never heard of it nor is it made now.

Meals.—The whole family eat together without any distinction as to age or sex. Usually several families live in one

¹Kava is drunk on certain occasions on the coast of Daudai, as at the initiation of the lads (see Anthropological Notes from Daudai, by Beardmore, which will be published in the next number of this Journal). Macfarlane found the custom exists amongst the natives near the Fly River, "Here it is the men who chew the root" (p. 126).

e, in which case there may be one or more fireplaces. I do not say whether two families eat together round the same fire, I believe they would, but each eating their own food. The meals are very simple and unceremonious. Feasts were made on initiation, marriage, and death (q. v.). Owing to the absence of intoxicating liquors there were no drinking festivals.

Dietary.—I should say that on the whole the food was sufficiently varied. Yams and sweet potatoes are fairly abundant on many of the islands; some fruit or other is nearly always obtainable. Fish or shell-fish is eaten nearly every day with occasional meals of turtle and dugong; the two latter are especially "rich" or oily. No dirt is eaten or other apparent perversion of appetite prevails. Salt is not used. As to the quantity of food eaten, I should say that it is on the whole less than that of an average Englishman.

Tobacco inhalation by means of the bamboo pipe was the most exciting. A kind of exhilarated madness or frenzy was readily induced in the sorcery men by partaking of the juice of fish and oil of human corpses. I shall have more to say on this spurious intoxication, if I may so term it, on another occasion.

Anthropophagy.—Cannibalism certainly does not exist now, and the term signifies making a regular meal of a man, it never did occur. A man would tear out the tongue, or other parts of a man he had slain in battle, and eat it raw or partially cooked, merely as a charm for bravery (see accounts of different islands). They would drink the sweat of warriors on their return from fighting for the same reason. In the "Narrative of the melancholy shipwreck of the ship, 'Charles Eaton,'" Wemyss, 1837, p. 45, the following passage occurs: "John Ireland [one of the two survivors] states that the savages on Boydany Island ate the eyes and cheeks of the shipwrecked people belonging to the 'Charles Eaton.' This they induced to do from a peculiar notion which they entertained that such conduct will increase their desire after the blood of men." The shipwrecked crew were brained in August, 1833, by a party of Aurid men who were fishing at Boydany (this island is not named on the latest Admiralty Chart); the motive here given is correct, I cannot say. The women and children with the murdered crew.

Narcotics.—Tobacco is the only narcotic used, and is invariably used for inhalation from the characteristic bamboo pipe. At the present time the use of the bamboo pipe is being supplanted by short European wooden and clay pipes, and the use of cigarettes. The latter are made from trade tobacco as required, crumbled in the hand, and then rolled up in

piece of paper (newspaper preferably) or in a fragment of a banana leaf. The native pipe is made from a piece of bamboo from over a foot to between two and three or even four feet in length. The natural partition at one end and the intermediate one, if such occurs, is perforated. At one end of the pipe there is always a complete partition, and near this a small hole is bored. Into the latter a small wooden or bamboo tube, a few inches in length, is inserted. The tobacco is put in this and the open end of the pipe applied to the mouth, and by suction the pipe is filled with tobacco smoke; often they will even put their mouth to the bowl and blow down through it. As soon as the pipe is filled with smoke, the right hand is applied to the open end and the bowl is removed. The small hole is applied to the mouth and the smoke sucked through it, after the withdrawal of the hand from the open end. The length of the pipe causes such a draught that the smoke is violently inhaled. When a man has had a suck he will put his hand to the open end, to prevent the escape of the smoke, and pass it on to another, who receives, and may be transmits it to another in the same manner. The women usually prepare the pipe and pass it on to their men.

The effect of this kind of smoking appears to be very severe. The men always seem quite dazed for a second or two—sometimes longer—but they enjoy it greatly, and value tobacco very highly; they will usually sell anything they possess for some. I have seen an old man reel and stagger from the effects of one suck at the pipe, and I have heard of men even dropping down on the ground from its effects. Jukes says of the Erub people (187):—"In smoking their own tobacco [which is of a light-colour], they break off a piece from the plait into which the leaves are twisted, and wrap it in a green leaf to prevent it catching fire to the wooden bowl. A woman is then deputed to blow the bamboo with smoke, as before described, and on its being filled round, each person takes a long draught of smoke, which he *swallows*, apparently with considerable effort, and stands motionless a few seconds, as if convulsed, with the tears in his eyes; he then respires deeply and seems to recover. They call it *erec oora* [*are ur* or *ur are*], (to drink heat or fire) and, sitting their stomachs, seem much comforted after it. I tried their tobacco, but found it intolerably hot and strong."

A friend of mine, who at one time took to smoking the Papuan pipe, gave me the following account of his experiences. The inhaled smoke is retained for as long as possible and let out through the mouth and nose. There is a very strong draught through the pipe, which drives the smoke right into the lungs. At the first time this nearly chokes a person, and this experience generally satisfies all curiosity. After a single inhalation the confirmed smoker feels happy and sleepy; the effect is much the same as with opium, but with none of

Macgillivray also offers similar testimony: "On several occasions at Cape York, I have seen a native so affected by a single inhalation as to be rendered nearly senseless, with the perspiration bursting out at every pore, and require a draught of water to restore him; and, although myself a smoker, yet on the only occasion when I tried this mode of using tobacco, the sensations of nausea and faintness were produced" (I, p. 126).

Tobacco is very little grown now in the islands, as the natives much prefer the ordinary trade tobacco. It is cultivated in Daudai and all round the Papuan Gulf.

Crimes.—As there was no recognised government or state, nor any system of religion, all crimes were of a purely personal nature, and were individually revenged.

There is no reason for believing that homicide was *a priori* reprehensible, it only became so when a man's own friend or relative was murdered by another. No one, however, had a right to grumble at a man killing his own wife or children, as were regarded as his own property. Infanticide was a usual practice. The assistance of a sorcery-man was often sought to encompass the sickness or death of a person against whom a grudge was held. No stigma rested upon either party to his contract.

On the other hand, it was a meritorious deed to kill foreigners either in fair fight or by treachery, and honour and glory was attached to the bringing home of the skulls of the inhabitants of other islands slain in battle. The men of Tud were notorious warriors, and I was told, often used to make a raid on another island in order that their young men might have trophies, and a favour with the women. Such raids were, as often as made upon weak islands, and not necessarily against those with whom there was any enmity or ill-feeling. I never heard of a case of suicide.

As to sexual crimes were very differently regarded by these people. Owing to the fact that the women in marriage to the men, the girls held a very independent position, and, rightly or wrongly, they and the married women were considered as the seducers. Thus more than once I was told "Woman steal man." The wrong done in such cases about the Straits was considered as a theft, but in these islands, where the women took the initiative in marriage, it was

the illusion. This smoking deadens all the senses. After a whiff or two, the smoker goes off into a deep, heavy, but not refreshing, sleep. The smoke is not hot. My informant smoked in this manner for about six months, but had to stop it off as his heart became affected. The heart's action was weakened, and he had a dry barking cough. It made him generally lazy and nervous, and empty nervous. He always took a pull when the effect of the last was off, and had a great hankering after it. In his case the lungs were not affected.

a convenient legal fiction to attribute to the women the active part, and therefore what wrong there might be in unrecognized sexual connections. "Woman he steal man, how man he help it?" is an excuse which is not confined to Torres Straits. I was told in Mabuiag that a girl who was notoriously free in her favours was branded; to the man less disgrace was attached. (For further details see separate accounts of the islands.)

After marriage, as the wife was the property of her husband, the latter was the aggrieved party in rape or adultery, and he had to be reckoned with. If the husband was very "wild," the death of both parties would alone satisfy him, but more mercenary considerations might occur to him, and he would let the man off with a fine.

I never heard of any unnatural offences in the Straits, though sodomy is largely practised at Mowat in Daudai.

Morals.—During the initiation of the lads in Tud a code of morals was taught which indicates a really high feeling for morality. Theft and borrowing without leave were prohibited. The hungry and thirsty were to be satisfied. Parents were to be honoured and provided with food, even to the extent of self-denial on the part of the son and his wife. Marriage was forbidden to cousins and also, with a remarkable delicacy of feeling, to the sister of a man's particular friend. A man must not propose marriage to a girl or even follow her when she walks about. A man must stand shoulder to shoulder with his brother when fighting, and not shirk his duty. Probably similar precepts were inculcated in the other islands, and it is so very probable that the people, as a whole, acted up to their standard of morality as well as, or better than, the most Christianised peoples of Europe live up to their professions.

As popular legends do not set up heroic ideals of virtue, we now understand that term. Kwoiam killed his mother-in-law cursing him, and then went fighting in Boigu and Daudai to kill men "to pay for mother," whatever that may mean. Gelam behaved meanly to his mother in giving her lean pigeons to eat; she played a practical joke upon him and frightened him, on discovering which he retaliated, and then he went to another

Goba, however, was killed after he had duped two villages by continually eating up the food which they had entrusted to him for mutual barter. In the story of Sesere the men who stole his meat were amply punished with death. Poor Yawar was brutally treated by the men, who continually forgot his instructions concerning the best method of cultivating ~~the land~~. The infant Upi was cruelly and wantonly speared by some men in play.

I believe that public opinion as to what was good or bad

are not much cared for one way or another. The people are rest talkers, and are always ready to sit down and "yarn." Doubtless formerly the "big men" looked after the morals of the community in a general sort of way, but I suspect that any man who could take care of himself could do pretty well what he liked, but no one was free from the supposed effects of sorcery.

Parents are very fond of their children, and I have never heard of a man ill-treating his wife or children, nor do I believe that the wives had much to complain of in the past. According to Macgillivray the Muralug women were not particularly well-treated, but I cannot help thinking that in this, as in many other cases, the Kauralang were more debased than the other islanders. When a man was "wild" from the effects of his being in training for sorcery (this appears to have been particularly the case after he had partaken of putrid human excreta), he might on the slightest provocation murder his wife and children and no punishment would follow.

Religious influence was brought to bear on moral conduct as there was any reward or punishment for deeds or conduct in this world or the next.

There must have been a strong sense of commercial morality, the custom of purchasing canoes on the three-year-hire system would never have originated or have been kept up. This moral feeling had clearly a utilitarian foundation, for I particularly inquired whether cheating occurred, and pointed out the difficulty there would be in detection. The continuance of the system proved that dishonesty was, at least, very rare. There was a good chance for cheating to be found out, as friends of the creditor would inform. Should partial or entire repudiation of debt take place, the supply of canoes would cease, "we get fish or turtle or dugong, we hungry all the same, no good," and furthermore there would be a fight.

I gathered the impression that chastity before marriage was unknown, free intercourse not being considered wrong; merely "fashion along we folk." On the other hand, I believe that unbridled license was indulged in. Decorum was observed—thus I was told in Tud a girl, before going to bed, would tie a string round her foot and pass it under the threshold wall of the house. In the middle of the night her lover would come, pull the string, and so awaken the girl, who would join him. As the chief of Mabuiag said, "What can the girl do; if she wants the man how can he stop her?"

During actual courtship and the probation period before marriage, I do not think that sexual intercourse took place between the contracting parties, except in the case of

Muralag people. Possibly neither were celibate during this period, almost certainly not the men.

Marriage certainly implied the personal and sole rights of the man over the woman. Adultery, on the woman's part, constituted an act of theft, and therefore was a personal injury. I am doubtful whether it was really an offence against morals.

The Rev. Dr. MacFarlane, however, informs me that he believes that the natives maintained a fair standard of sexual morality before any intercourse with other nationalities.

Bravery, ferocity, endurance of pain and hardship, and other warlike qualities, were undoubtedly regarded as great virtues.

Covenants, oaths, ordeals.—I never heard of any of these.

Religion, Fetiches, &c.

Souls.—I never heard anything which led me to believe that the natives recognized that they had a soul when living, or anything analogous to it, but they certainly did believe that after death their "*mari*" left the corpse. *Mari* may be variously translated as shadow, reflection, spirit, ghost. If it were required to preserve the skull of a deceased person, a number of men would, several days after death, very quietly approach a raised platform or temporary grave, as the case might be, and then simultaneously stamp the ground with one foot and a grunt to frighten away the remaining *mari* of the deceased, since the head would not come off easily. I gathered that as a belief that part of the *mari* left at death and part remained frightened away. I also heard something about at the graves for a few nights to see if anything would. I could not get a satisfactory account of this custom, however. I gathered was that the *mari* haunted the several days after death, and the relatives probably kept vigil in order that the *mari* might in some way or by giving them information which would lead to the identification of the individual who had caused the death, for, as we elsewhere stated, they do not believe that either life or death are due to natural causes.

I never heard of any belief in apparitions of men seen at a place at the time of their death, nor in the appearing of a dead person.

I have no information of any past practice of human beings being put to death at the burial of a person. The

exception to this is in the legend of Kwoiam. That hero,

after he had murdered his mother for cursing him, cut off her head with his bamboo knife, and said to the corpse, "I'm going to kill everybody in the other islands to pay for you." I could not quite understand what was meant, but took it to be a

rice. If some man had killed his mother, it
was his duty to be revenged upon the
murderer. Having done it himself he could hardly
do so his neighbours, and so strangers paid the
[heard no hint of people being put to death to serve as
examples for any one else.

I do not know whether there was a belief as to animals or
spirits possessing more like those of men. At all events, the
clothes or articles or utensils belonging to the deceased were often
buried with them or hung round their graves. I have seen
bodies wrapped in their own mats, and the unfinished food of
their last meal left by the side of the corpse. A bamboo pipe
would often be hung on the grave, posts or placed on the grave,
together with food and a constant water-vessel. I express this
only as a possibility for the satisfaction of the spirit of the deceased, and

not feeling against using the more personal
articles which had been in use immediately
before death, such as shell ornaments or stone
knives with the dead. I do not know that
any spirit of the deceased person fed on or
the objects placed on the grave. The belief
is perfectly indigenous one, and exhibits
borrowed or adapted from any outside

not believe that there is any doctrine
in. According to the legends, Matsuo

and into flying-foxes
their heads were
have been human
was as "Bar," was
informed himself
a hill quickly.

Kaba or Kibaki,
is equivalent
the wind blows east

It is quite possible

here, i.e., the greatest warriors, the biggest skull-hunters, and so forth, were in some way or another better off there; how, did not quite appear. Neither of us gathered that morality or religion had anything to do with it.

Manner—Worship.—I do not think it can be said that the souls of the dead were regarded either as demons or divinities, nor do I think it can be correctly said that they were worshipped.

Relatives might be invoked for divining purposes by means of their skulls, as in the legend of Sesere; or, as in the case of Upi, one might divine through the good offices of the skulls of strangers. Thus anyone might do it, no priests being necessary. The skulls would be cleaned, repainted, and anointed with oil, and placed upon certain "leaves along bush;" usually, if not invariably, these had a distinct scent. The inquirer would then enjoin the skull to speak the truth, and putting it on his pillow at night-time, would go to sleep. The skulls were supposed to speak to the sleeper with a chattering noise (described as being like the noise made by knocking the teeth together). The dreams were the messages upon which action would be taken. Wyatt Gill (p. 217), says, "They delight to ship the *Mases* of their deceased ancestors, as represented male and female skulls. These are carefully treasured up in huts, and carried with them on their voyages." Personally,

this was a form of worship, but merely one thing. The carrying the skulls in canoes, as men-
was probably partly for affection and partly for

to war, or in times of peril, men would invoke
gods, such as Kwoiam or Sigai, so that they
and strength. I did not discover how the
red, but I believe the idea was that they might
the fighting virtues of the old heroes, and not
lieved that the *mari* of the heroes could do any-

ancestors, so far as I could learn, were never really
Personally I could never discover any satisfactory
in the belief of a god or gods.

It appears to have been the custom in the Western
or at all events in some of them, to have places set apart
to the memory of the dead.

Following are the only two accounts which we possess of
memorials. Unfortunately, neither observers had the good
to witness any ceremony connected therewith.

J. Macgillivray (II, p. 37) gives the following description
at he saw in the Island of Nagir, in the year 1849(?)

a beautiful opening among the trees behind the village was an extraordinary screen, named *wows*, the purpose of which, as far as we could understand, had some connection with the memory of the dead. It extended fifty-six feet in length, with slight outward curvature, and measured five and a half feet height. It was formed of a row of poles stuck in the ground, crossed in front by three horizontal strips of bamboo, and covered with cross lattice work. The bars of the screen were daubed over with red paint and hung with rows of spider shells, also painted red. Some poles, projecting above the others two to four feet, had painted jaws of the digging and large conch shells (*Fusus proscindens*) fixed to the top, and numerous other digging bones and shells were scattered along the front. On the ground along the foot of the screen was a row of stones and painted in imitation of grotesque faces, and as the old man who acted as *cicrone* attached to it with were dead. In some the painting was red, and the stones appeared to have a different purpose to commemorate the dead of the families of the tribe. We saw another of a person. Like the first one it was situated in a forest, but unlike it the front was covered or encased in coconut leaves, and it had a small door-like opening in the centre.

The former of the two screens is illustrated by a plate in Gillivray's work.

Second account is that by the Rev. Dr. W.

D., who, in the course of a visit to Torres Straits and north of New Guinea, landed on Parem, or, as he terms it (Bampton Island). Dr. Gill writes: "A

on were two funeral screens, so arranged as to form a passage between them. They were eight feet in height, and consisted of a number of poles stuck in the ground, covered with lattice-work. At intervals were hung wooden images of turtle, sharks, all

dingoes, and cassowaries, all

to thirty. At the base were

i.e., gods, and until recently, human

inhabitants of Parem are a Daudai tribe

lives in the restricted sense of the

in respect, at least, a similar custom

support those of Dr. Macgillivray.

me there is no "Waus" still standing

open Straits. In Nagai, the place is

still to be recognised in the confused line

between shells of the large *Fusus*, *Cassowaries*.

Giant Clam, but the old clear spaces are now overgrown with scrub, and a native's guidance is necessary for their discovery.

I am unfortunately unable to give much precise information respecting the ceremonies connected with the Waus. That the Waus was associated with the memory of the dead admits of little doubt. My informant stated that the flat stones on which faces were painted were prepared by the men, and the women would say, "That is my boy or girl," as the case might be, and give the name of her child to the stone, or "*kula*," as it was termed. The islands of Nagir and Yam only had this custom (?).

I gathered that certain functions were carried out in the clear space in front of the Waus. In fact, we may reasonably regard this as being an area set apart for these ceremonies. It was here that the death-dance or "*Merkai*" was held, and the "*kernge*" or initiation ceremonies, and also a ceremony called "*Maiwa*," of which I was only able to collect fragmentary information, during the fruiting season of the *Wangai* (popularly known as the "Wild Plum"). The men and women would assemble in front of the Waus. Then a man, whose body and head were entirely hidden beneath a covering of leaves, would emerge from behind the Waus and (probably after some preliminary dancing) would chase away all the spectators. I was informed that the *kula*, or painted stone faces, were placed by the men only for *Maiwa*.

I am inclined to believe that the *Maiwa* was the real ceremony the memory of the dead, and that the man, who was so red with leaves that his identity was visually undetectable, represented a *Mari*, or spirit; probably not the spirit of a deceased individual, but a representative spirit of all the wooden images of animals seen by Dr. Gill may be representations of the totems (*augud*) of that tribe.

Kernge and *Maiwa* ceremonies might occur at the same different times, but they were transacted in the same

going from a dance that I saw in Thursday Island performed by Muralug and Nagir men, I imagine that the Waus was primarily a screen to serve as a background for the dancers, and at the same time to hide the preparations of the dancers who were to come on next, and the *déshabille* of those who had already taken their part.

Illusion and Possession.—All diseases, ailments, and accidents are supposed to be the result of sorcery. I never heard them attributed to demoniacal influence or of spirits "possessing" people, either nocturnally, as in nightmare, or more or less constantly, as in mania or delirium.

Spiritualism.—I know of no practices akin to modern

malism, unless the divination above referred to be reckoned such, but, according to the story of the Six Blind Brothers. Badu, here might be employed as divining mediums, and each brother had two feathers on his head, the spontaneous movements of which informed them whither to steer or where to spear fish. If they asked a definite question the feathers would remain motionless for a negative, and vibrate in affirmation. Kwoiam once used his throwing stick as a divining-rod. These three latter instances weaken the view that there was any spiritualistic significance in skull-divination.

Fetichism.—Many of the religious instincts of these people found expression in certain forms of fetichism, especially if we include the use of charms within that term. Certain natural carved stones were regarded as having supreme powers, whether as vehicles of supernatural influence, I cannot say. An example of this occurs in Macfarlane's MS. Saibai (a village in the Island of Kiwai, a few miles New Guinea) gave birth to a stone fetish. This insculpted stone was at first, and its power was proved by the success of the village of Kiwai, also on the same island, was stolen by the Saibai men, by whom it was a Life teacher (Jakobo) in 1882.

For stones were used to ensure good fortune in dugong and turtle fishing. These were images carved in the shape of either a dugong or a turtle, painted and anointed with fat, as is detailed in an account of

Gill says (p. 217), "The Torres Strait Islands, and painted stones, to give success in wind, &c." And again (pp. 267, 268) "On the Rev. A. W. Murray, the first missionary to the islands, "While sitting among the natives in their gipsy-looking camp, a little boy is affirmed to be the principal god of the Jarvis Islanders. It is in the shape of a man, and wearing a white cloth around his waist."

held in the hand, as I have seen in many other parts of the world. We saw many of these stones in the primary workshop.

to my mind an open question how far worship was connected with the "*Wane*," or funeral screen, and the stones with faces painted on them which lay there. I consider the latter as memorials of the dead, not as idols.

Spirits and Demons.—I have no positive information on the subject of a belief in spiritual beings. I believe the natives have an idea that such exist. There was a widely-spread belief in a supernatural being or bogey termed "*Dorgai*," who was generally on the look-out to do some mischief, but who was easily outwitted and often killed. A *dorgai* was always female, clothed with the usual *gagi* or woman's petticoat, and her hair made up into long string-like curls (*yalai*) and plastered with mud; her limbs were long and skinny, and her features hideous and awe-inspiring in some cases, or the *dorgai* could put on a more seductive appearance, and personate the form and features of a woman, so as even to deceive her husband, as happened in the story of *Būkari*, the mother of *Kusa Kap*. One description of the appearance of a *dorgai* was that she was an ugly big-bodied woman with long legs but small feet, and ears so large that she could sleep on the one while the other covered her, just like a man sleeping between two mats. According to the myths I have collected, a *dorgai* might steal and kill a child, man for a husband, get rid of a wife, and so personify—accepted by the husband as his true wife. One inherited a number of boys and then cooked them in an with a turtle, and devoured them, another played a joke on six blind fishermen and stole their fish, and finally the *dorgai* were killed by those whom they seduced, and strangely enough their slayers themselves at times the *dorgai* became constellations, as did also the *Wane*, "*Bu*" by name; more frequently the *dorgai* turned into stones or rocks, as well as the men who

Spirits. *Worship of Plants and Animals.*—I do not know of any spirits especially attached to natural objects, springs, water holes, or spirits of trees, with the possible exception of the above-mentioned *dorgai*. The totem animals are sacred only to the members of that clan; but the belief is very partial, merely, so far as I could ascertain, a family connection and its immunity from being killed by a member of that clan, no worship or reverence paid to it.

Polytheism and Monotheism.—As I have more than once said, I did not discover a belief in gods in the ordinary meaning of that term, neither in a supreme deity; frequently there were no priests nor temples.

re, or rather were, just at the

observations of d'Albertis, turning
into the turtle-charm or idol

is, what was the significance of it
as an uncommon practice, but inf

The idea of sacrifice is unknown
y austerities are those connected
with or into sorcery. There was no
austerities to induce visions or

—The only purification I heard of was
house for several days with a lighted
currence of a death within it.

I know of few general superstitions
local ones, for example: At Mahu
es from a spring on the side of Kwoiam
on which the water emerges is reputed
by a spear-thrust of Kwoiam's. No young
of premature greyiness, may drink from it
they may drink from a rock-pool a foot or
which it flows. A few other superstitions will

separate as

14 islands

Western Tribe of Torres Straits.

I did not hear of any lucky or unlucky objects or acts, or of any prejudices connected with yawning, sneezing, or like actions. Although on the look-out, I did not notice that any phrase or word was uttered, or any action or gesture performed after one of these actions; it is different, however, in the Eastern tribe. See also special account of Muralag.

The only curious fancies as to animals I heard of were that a man was formerly supposed to have some affinity for the totem of his clan; for example, an Umai man was credited with understanding the habits of dogs, and with ability to exercise special control over them. Animals are not treated as rational or talked to more than with us, perhaps not so much so. The sucker-fish, *gapu*, used in catching turtle, is supposed to possess miraculous powers, as is mentioned in the section relating to turtle fishing.

One wide-spread superstition is, that concurrent or even future misfortunes injuriously affect the success of any enterprise. In the story of Upi, his mother left him when an infant slung up in a basket inside the house while she went to make her garden. A strong gust of wind blew the basket out of the house, and the infant Upi rolled out on to the grass, and was ultimately carried away by some strangers. As the mother was working in the garden her digging stick broke, and she at once thought something was amiss. "Inside along her said, 'I leave my I go look, perhaps some one he take him,'" and she came to find it was as she anticipated. According to legend, a party of Bada men when out on a turtleing left their boys on the island of Matu to take care of the turtle they had captured. One day they had bad luck, no turtle; wondering at this, the men determined to Matu, where they found that a Dorgai of the island of Kampar had murdered all the boys but

that similar experience to the last occurred when I was at Mabuig. The chief of Mabuig has perhaps killed more than any man alive or dead, and one day he boasted to me that he was invariably successful. Very shortly after this he went to harpoon dugong, and had the misfortune not only to fail in his attempts, but also to break the dart of his dugong. I am not quite sure that he did not try the following day with the same result. Within three or four days, first a baby was born in the village, and then two women. The chief then came to me and told me that this accounted for his bad luck, and he was happy in the belief that it was not his fault that he had failed in his dugong.

Here also may be mentioned the former belief in failure to

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be able to do.
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at the hand.
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feery and divini

some wise men who understood rain and

Divination by means of skulls was practised
so far as I could discover the maidelaig did not di
ry men, save in their extraordinary pow
arked in the gardens and so forth. They
e who used them, but I did not hear of a
ation. I also did not hear that they were ever
y put to death; they themselves were as safe
of another man's sorcery as anyone else.
spirits of the dead, usually of relatives,
t-divination) to give information. Oth
ngs were not invoked. In the story
of Moa, lice (ars) were used for divinin
as well as in the story of Sesere, b
to me by the same man, after the
ished speaking, they were respect
airer with the words, "Go away"
e the truth," then bringing them t
truth," but nothing further transp
lated with having spoken truly.
the skulls were freshly painted
ven. It would appear from the stor

mined by the fall in that direction of a throwing-stick (or other object) held vertically.

I do not believe that drums or rattles or particular songs or charms were ever used in divination.

Dreams were undoubtedly regarded as the answer to an appeal to divining skulls, lice, or other possible oracle. Whether ordinary dreams had any significance attached to them I do not know. Dreams were never induced, so far as I know, by fasting or narcotics. I know of no cases of ecstasy or of second sight, either past or present. I have previously alluded to the peculiar mental condition induced by feeding on corpses; this may have, to a certain extent, served the purpose of ecstasy, in so far as the maidelaig were, for the time being, irresponsible agents; but the frenzy thus obtained was probably regarded as an element of power.

I know not of any superstition allied to the evil-eye. I have no information whether the maidelaig ever operated through objects belonging to the victim or intimately belonging to him, such as hair, nails, clothing, or the like. In some cases the maidelaig would give the victim's name to an image before performing on the latter.

Magical arts of magic were common; indeed, this appears to be the basis of most of the sorcery: see, for instance, the raising the wind and producing rain in Mabuiag and Ude. In the special section will also be found a detailed list of sorcery as formerly practised in Mabuiag, and notes on other islands.

I have heard of omens being drawn from living animals, entrails of animals, or from accidents such as stumbling. I do not know that lots were ever drawn, certainly dice or cast. Astrology and the mysticism of names were not.

The myths and legends I have collected will be in Vol. VIII of the "*Folk-Lore Journal*" (1890).

The natives are fond of "yarning," and doubtless the Mabuiag men are no exception. There is no special bard or others, the stories are common property; but they are the recognised depositories of this and other legends and are appealed to in case of doubt. Some men excel in narration; I found, as a rule, that the Badu surpassed the Mabuiag men in this art, and Malakula, in particular, is a splendid story-teller.

Legends appear to be firmly believed in, although I was told they were only "stories." Owing to missionary and other influences, many were ashamed of the old stories, or indeed they were. I believe that as with us so with them.

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own that
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r the Dorgai-constellations are imagined
age; my impression is that the myths an
o account for the appearance of
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re of the story are transformed in
ands. A remarkably upright stone
form and speculation as to its origin
into a legend, and thenceforth stood
is same.

tedly account for the inven
r of religious ceremonies. I
Yawar discovered an impre
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t hear a deluge myth nor any accou
ent of man. Men may be transfo
it is covered, except as a retransform
f. Kwodiam and Seneire. Mutuk and his folk
ly transformed into flying-foxes, and Bis pe
ir into a dog-fish. I never heard any o
he stories appear to possess any moral signi
is no episode in any of the stories which
ce of having a foreign origin, or of having been
iniscenc
stories, mythology, or religion.

Mutuk being swallowed by a shark and remaining alive inside the fish for some time can have no connection with the Jonah myth. The non-sexual conception of Kusa Kap by Būkari, and Aukwim and the Dorgai of Bopa walking on the sea are also independent of Biblical narrative.

Government.—All the islands of any size now have a chief or *Mamus* ("Manooose"), as he is called, who is recognised by the Queensland Government (to which colony these Torres Straits Islands belong). The *Mamus* was in most cases elected by popular vote by the natives themselves, at the instigation of the Government Resident at Thursday Island. His main function is to act as a kind of police magistrate, and with the assistance of the policemen and old men, to pass judgment upon cases brought up for trial.

Formerly every island had one or more head men, who gained their position by personal influence. Great warriors, bullies, or men with extra mental ability became the recognised leaders, but they possessed no real power or authority; it appears they could be deposed, or rather not recognized as important; probably there was a sort of election, formal or informal, during the yarns of the old men. The position was not hereditary.

Naturally an important man would be in the way of acquiring more influence than other men, and this would tend to increase his influence. Any village might have its own chief. The islanders, I should imagine, were distinctly gregarious. The island of Yam was associated with Tnd, and may be regarded as the garden of the Tnd. The chief of Tnd was also the chief of Yam. In Tnd he put in a *locum tenens* in Yam, but in Yam he at once exercised his own power. This was quite an exceptional case. Further notice of Tnd will be found in my special account of that island. There was no system of government except by the oral tradition of the old men, their precedents would constitute a law which was beyond appeal, and which would probably restrain public opinion.

The action of the Queensland Government in causing chiefs to be elected, and in giving them official recognition and certain duties to perform, appears to me to be a very wise one, which acts admirably.

McFarlane says (p. 28), "There are no real chiefs, but simply men, who are leaders in time of war, but have little influence in times of peace beyond their own families. So that among these people you are exposed to the anger, jealousy, or cupidity of any man who may wish to enrich himself, or to spite his enemies by taking your life."

Hivray states (II, p. 27), "Throughout Australia and trait, the existence of chieftainship, either hereditary or red, has in no instance of which I am aware been clearly ; yet in each community there are certain individuals exercise an influence over the others which Europeans are apt to mistake for real authority. These so-called chiefs are generally elderly men, who from prowess in war, force of character, or acknowledged sagacity, are allowed to take the lead in everything relating to the tribe. In Torres Strait such people are generally the owners of large canoes and several ves; and in the northern islands, of groves of cocoa-nut trees, a grounds, and other wealth. Among the Kowraregas there, according to G'rom, three principal people, Manu, Piaquai, Baki, all old men."

Weapons.—The weapons used by the Torres Straits Islanders the bow and arrow, javelin and throwing stick, stone and leather clubs.

Bow and arrow.—The use of the bow and arrow extends through the Torres Straits Islands, but not on to the mainland of Australia. Bows and arrows are of universal occurrence in the land round the Papuan Gulf, and some way down the South Eastern peninsula of New Guinea.

Bows are usually of large size and very powerful. "The bow is made of the upper part of a stout bamboo, partly straight, partly flattened and bent over the fire. The string is a strip of the tough outer rind of a bamboo [rattan], as the lashings are very ingeniously and firmly made" (Jukes 9). They vary in size from about five to six feet in length and average about two inches in the broadest part. "The bow at Erub "more than seven feet long, and in the middle more than three inches wide, and an inch thick" (I.e., I, the bows are made by the inhabitants of those islands where the bamboo grows.

In all the islands of the Straits the bow is held at that end of the bow being held uppermost which the bamboo grew nearer to the ground. Jukes (I, p. 21) at Erub that the opposite was the case, but his information gives no reason for the custom. In stringing and in firing the bow the same end is placed against the ground, as is the case at Erub.

The arrow is held between the thumb and bent forefinger of the right hand, the string being drawn either by the thumb or by the three remaining fingers. The arrow is then released and shot between the forefinger and middle finger of the hand holding the bow, and to the left of the hand. (See Pl. IX, fig. 2.)

This is the "secondary release" of Morse (E. S. Morse, "Ancient and Modern methods of arrow-release," *Bull. Essex Institute*, XVII, 1885), but that author does not record the use of the little finger in assisting to pull the string back. I know from several observations that the secondary release is the universal method in the Straits.

Extra arrows are held in the bow-hand. There is no quiver.

I intend elsewhere to describe, with some detail, the various kind of arrows used in the Straits. They were all obtained from Daudai, and those with bone tips are reputed to be poisoned; the natives always take great care when handling the latter. None of the arrows are notched or feathered.

An arm-guard (*kadig*) is invariably worn on the bow arm. It is usually from six to seven and a half inches in length, and is made of obliquely woven split cane or rattan. I obtained a very old specimen at Tud, which was made of longitudinal strips connected and interwoven with regular, parallel circular bands of cane, very similar to that figured by d'Albertis (Vol. II, p. 378, fig. 9). I believe this specimen came from the Fly River.

Javelin and Throwing-stick.—I found that the use of javelins and the throwing-stick had been introduced by the Western Tribe from Cape York. So far as I know this is the only instance in which the Papuans have borrowed from the Austro-; the innovation was a wise one, as there is a general consensus of opinion that it is a more formidable weapon. I informed that it generally took three or four arrows to a combatant *hors de combat*, whereas one javelin had that desirable effect, and besides, a better aim made than with bow and arrows; again at Muralug it in fighting the white man javelins were found to be more efficacious than arrows. [According to d'Albertis (I, natives of Yule Island, New Guinea, "prefer the bow and arrow, which is becoming obsolete among. These weapons are found in the westernmost islands to Mabuaig, but I do not believe their use extends to Dauan, Saibai, and Boigu, or eastward to It is possible that they were used on the two

Judging from a photograph in my possession, taken, I believe, at Motu by a member of Mr. T. F. Bevan's expedition, the same release obtains New Guinea towards the eastern limit of Papuan archery. But this latter indicates a distinct variety, as the string is held by the second and third fingers, while the index finger, instead of being bent on the right side of the bow, is bent and put on the arrow to steady it; otherwise the bow is held as by the Torres Straits Islanders. The archer in this photograph has no arm-guard; this appears to be also wanting in the north of New Guinea (Dutch territory). (See Pl. IX, fig. 2.)

weapons, but the bow and arrow
only. The bow and arrow is very
old is the only missile of the his-
tory lying to the north of it

also only use the bow and
islanders use both projectile
weapons and spears on the
Guinea. The heavy spears

used by a throwing-stick, which
is an Australian implement. That of the latter
provided with a hook which fits into
of the javelin, whereas the New G

a pointed extremity which fits into a cup
the throwing-stick. I may here mention that
the chief of Tud, distinguished between "I"
the coasts of New Guinea) and "Bru" I
the latter, he explained, meant "Spear" I
catch of a spear sufficiently like the well

common in our Museums, to be quite
distinct from any local spear or javelin
the word "Bru," too, is not a local word
that he seized upon a distinguishing feature
of the lighter coloured Papuans. How-
ever I do not know. He told me of
a man by name, who was supposed to
go to the eastward in his canoe as far as
mainly a great and travelled warrior, as
related of him is true, he was possi-
bly an Islander who had accomplished that
low-rangas [Prince of Wales Islanders]
from their northern neighbours, and of

warfare, the

which are made by

blacks of the mainland. We saw three kinds of spear [*kalak* general name] at Cape York; one [*rada*] is merely a sharpened stick used for striking fish, the two others, tipped and barbed with bone, are used in war. The principal spear (*kalak* or *alka*) [*tuna*] measures about nine feet in length, two-thirds of which are made of she-oak or casuarina, hard and heavy, and the remaining third of a very soft and light wood; one end has a small hollow to receive the knob of the throwing-stick, and to the other the leg-bone of a kangaroo, six inches long, sharpened at each end, is secured in such a manner as to furnish a sharp point to the spear and a long barb besides. Another spear [*taku*], occasionally used in fighting, has three or four heads of wood, each of which is tipped and barbed with a smaller bone than is used for the *kalak*.

[The names for spears in square brackets [] are taken from the vocabulary at the end of Macgillivray's work, p. 293.]

"The throwing-stick in use at Cape York extends down the north-east coast (of Queensland) at least as far as Lizard Island; it differs from those in use in other parts of Australia in having the projecting knob for fitting into the end of the spear parallel with the plane of the stick, and not at right angles. It is made of casuarina wood, and is generally three feet in length, an inch and a quarter broad, and half an inch thick. At the end a slip of melon shell, three and a half inches long, crossing curves as a handle, and, when used, the end rests in the palm of the right hand, the three last fingers grasp the forefinger and thumb loosely retain the spear. It is of the powerful leverage of the throwing-stick and is thrown to a distance varying according to its weight, thirty or forty yards, and with considerable precision; it may easily be avoided" (Mac-

18, 19).

My informant gave me to understand that there were three kinds of javelin or *kalak*: the *rud*, or small form with a wooden point; the *tun*, or large barbed variety; the *wonged* javelin with barbed points; and the *waki*, similar to the *rud*, but armed with the serrated spines of the sting ray.

He also said that the *taku* was mainly aimed at the neck, the *tun* at the back, and the *waki* at the front.

When embedded in the body of a victim the gum which surrounds the barb of the barbed javelins dissolves, and in the case of the *taku* the barb may come out from the wound, but the string which remains behind. The latter was said to be poisoned, to compass the death of a man (this is probably incorrect). The *waki* javelins, I was informed, can be thrown with precision: the *rud* ones fly straight, and can be easily seen while traversing

but the large ones vibrate too much to be readily seen. wing-stick is also used to ward off javelins.

wing-sticks I obtained at Mabuiag from mentioned, were of precisely the same used in North Queensland. Many were manufacture, but I believe some of the imported. The name of the throwing of the *lobas* is called *war*, and its shell-nail."

usual form is that with the common disc as *guba guba*. The spiked or knobbed met with. These clubs are, I believe, and I have seen one or two flat irregular which, I suspect, were of local manufacture. I procured two clubs, each of which was cut of wood. The head of the club was an ordinary stone club. At Saibai I obtained which had the end swollen and shaped like at terminal, the handle too had a short respect, clubs from New Caledonia and am aware that a native teacher from

has been stationed on Saibai for about fifteen years, is possible that this form of club may have been introduced by him or by some of his compatriots; for the present this must remain an open question, but I believe it can be shown that the shoulder at the handle end was an occasional feature in truly indigenous staves.

Laws—(a) Land.—I have no precise information as to laws, but I believe that the whole of the land is divided into properties, certainly the arable land is, the chief of anyone else. There is no one person or class of landless persons land to the total exclusion of anyone else. It

derived from inheritance, gift or purchase. I know no means of conveyance. Females may hold land.

fact, I believe all do. The only remedy for encroachment on rights of property is former personal punishment, provided that the perpetrator is stronger than the aggressor. Sorcery would not play if the injured party could afford to

(b) *Game.*—There is no game.

(c) *Inheritance.*—So far as I could gather, all irrespective of age or sex share alike on the father's side. I am not sure how far and in what degree in the mother's side.

(d) *Administration.*—There is no

of the

lated public opinion, but there was no legal machinery for bringing offenders to book, or for dispensing justice or adjudicating in disputes. Now, however, the Queensland Government has had a court-house built in every island having a fair number of inhabitants, where cases are tried by the chief with the assistance of those men who care to attend the court. In these islands there are two or three policemen, appointed by the Resident Magistrate at Thursday Island, who look after the peace of the community, and who bring criminals to justice, and keep them in custody when committed. In Mabuiag, for example, there are four policemen, one of whom is a "sergeant." The chief is supplied with a small list of offences with which he is empowered to deal, and the punishment is also indicated; for graver cases the prisoner has to be sent to Thursday Island for trial. I believe that justice is dispensed with fairness; the democratic character of the people (in the past) would counteract any tendency that might arise towards partiality of judgment. Owing to missionary influence the technical error is made of confusing moral and legal crimes.

(e) *Punishments*.—Punishment could only be inflicted by personal retaliation. Death even might be inflicted for anything.

the man was powerful enough to defy consequences. and had life and death powers over his wife. Death was lty for infringing the rules connected with the initiation a; for sacrilege. According to the legend, when Mutuk to his own island of Badu, after he had been given up and his funeral dance had been held, he and his friends ga were murdered. I have, in my own mind, no doubt crime in this case also was sacrilege. One of the two and native ceremonies had been rendered null and void n. The only way to restore its lost prestige was to on his return, and thereby render the solemn function y instead of retrospective of his demise. In such was usually inflicted by braining with a stone club. no information whether retaliation was acted upon. I no punishments of mutilation or flogging. Mulcts or ere undoubtedly paid to the party injured; in the case of the fine would be paid to the husband as a ransom, for as a recognised penalty. Formerly there was no im- ment. Private revenge in the old days was practically method of correction or of redress.

as.—The old salutation custom was to partially bend of the right hand, and to hook them with those of saluted, and then to rapidly draw the hands This was repeated several times. This practice was to all the Islanders, and I believe it also extends to

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and astonishment of
know of the custom,
fact, I rarely shock

its singular and plural form,
is acts of courtesy to
ion; for example, pointing
track, such as a loose stone or
one side to facilitate my pr
requested hats to be removed
me, exhibition of sorrow and self-cr
was done by thoughtlessly touchin
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ality are given in the code
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men were

poetic, but I gather that they were a decent people; now both sexes are prudish. A man would never go nude before me—only once or twice has it happened to me, and then only when they were diving. The women, according to my experience, would never voluntarily expose their breasts to white man's gaze; if caught exposed she would immediately cover her chest or turn round; this also applies to quite young girls, less so to old women. Amongst themselves they are of course much less particular,

I believe they are becoming more so, and I have been very assured that a man "can't" (i.e., must not, should not) a woman's breasts. The men often go with nothing but a "calico" on, but more frequently they are completely covered. It is very rare to see completely nude children of any age. I have not noticed any reticence in their speaking about sexual matters before the young, but missionary influence has modified this a great deal; formerly, I imagine, there was no restraint in speech, now there is a great deal of prudery; for example, the men were always much ashamed when I asked for the name of the sexual parts of a woman, even when alone or in

of one or two men only, and I had the greatest difficulty in getting the little information I did about ships between the sexes. All this, I suspect,

is a sense of decency *per se*, but rather to a not to appear barbaric to strangers; in other words, is between them and the white man, not as

Formerly I should say that great licence was indulged in, at present there is very much the white missionaries are aware of; still, I think fairly moral people now, as an educated

being itself felt in this matter. I am here observing amongst themselves, not with the men of other nationalities when tempted

I have already said that I do not consider that a licence was regarded as morally wrong.

altered the point of view; probably the husbands had to complain of. There is no drunkenness, and before the advent of the white man there was none either. A few of the natives would do anything for liquor, and doubtless could still, but the Queensland Government has prohibited the sale of alcohol to natives, a most wise measure. Is no native intoxicant.

ceremonial customs concerning which I have been able to get any information are described in their appropriate

the special accounts of the different islands. Practically the old customs have died out, though a few doubtless linger in more or less debased form in some of the smaller

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may conveniently be treated under three headings of (1) Intra insular trade; (2) Trade with Daudai; and (3) Trade with Cape York.

1. Intra-insular Trade.—Certain villages and islands, from their geographical position, would possess greater facilities for fishing, agriculture, or the manufacture of particular objects than others, and therefore would naturally exchange their surplus for a deficiency, or their specialities for the products of other places. The story of Goba illustrates this, in which we are told that the people at Wakaid on the windward or south-eastern side of Badu exchanged *lin*, or prepared mangrove, for the turtle caught by the Ergan, men who lived on the opposite side of the island.

If the people of an island have been very successful in turtling or in spearing dugong, they would take some of them to another island for barter. The turtle would usually be carried alive, and possibly a lately killed dugong might be conveyed entire, for it could hardly stand a voyage as fresh meat. Smoke-dried turtle and dugong meat and fish were used as food on voyages, and might be bartered, for though the dugong is generally distributed throughout the Straits, it is only abundant in a few spots.

The island of Muralug is the chief manufactory for dugong-harpoons (*wap*), but I believe they are occasionally made in Maa, Badu, and Mabuag. The Mabuag people pride themselves upon dugong-harpoons. Personally I thought that those of here finer, being beautifully finished and with a natural oil; the butt-end too was larger and well-shaped. But as men say that the Muralug *wap* is too heavy, so that ping into the water with it, the spear has a tendency to roll, and so to miss the dugong altogether; therefore to purchase a Muralug *wap* they pare off some of the wood.

ded about between the islands: I shall recur to

Y.

or round white shell ornament worn on the and the *warri*, or white shell armlet, are both made from a spotted cone (*Conus millepunctatus*). The former is the polished end of the shell, and the latter is made by cutting transversely at the thick end so as to form a wide ring, is then polished so as to eliminate all the spots. The cone are found on the Warrior Reefs and to the east, consequently the finest of these ornaments peciality of Tud, the Murray Islands, &c. (See Pl. VIII, and 3.)

and shell (*mai* or *mari*) being everywhere obtainable, the *mai* made from it, such as the crescentic breast ornament *mari* (or *mai*), would usually be of local manufacture.

On the Ethnography of the

means "tooth of pearl-shell." May be derived from two bears' teeth points away from each other? Tusk are common all over New Guinea. The present islanders migrated

possess than the tusks, and was far older name would naturally be retained. In olive shells (*uradai* or *warua*) were

ants naturally grew or lots, *mak-s-mak*, which is coco palm, are only therefore the *Muralug* is latter, however, so I have the Tud warriors making, Tud, and of all bows from Moa, Yam, and grows. Leaf tobacco

of masks made of wood and turtle shell, and feathers, shells and rattles, were occasional but one at Nagir and another at Yami, both had been made by Tud men.

stricted drums (*warup*) are, I believe, all obtained at whether they are all made there is another

shells, ornaments of all descriptions, weapons of their goods and chattels, were continually exchanged throughout the islands of the Straits.

with *Daudai*—Imports.—All the four *Daudai*, as the reeds from which are cut do not grow in any of the islands, doubtless occasionally accompanied also a large trade in feathers of the bird of paradise (*aldgam*) and plumed species (*P. ruggiana*). I only dresses of the yellow-plumed species at Mabuiag. I was informed that these are Tugeri pirates and Saibai. The Tugeri are distant up the War Kusar River. Drums are imported from Daudai. The *uradai* (*warua*) are

are will

are were also on

Guinea make. I could not for certain make out where the stone clubs came from; I suspect that many of them, at least, came from Daudai. Canoes were also imported. It is probable, judging from what occurred in the Eastern Islands, that manufactured sago was imported.

Exports.—All the products of the sea which were negotiable, were sent to Daudai in exchange for the natural and manufactured articles of that country. The main "trade" was *dibidibi*, *wani urada*, *kirisp* (nose ornament), *wap*, turtle shell, probably *makawat*, and possibly dried dugong and turtle meat, fish, and so forth.

Trade with Cape York.—As a rule only the Muralug people had any dealings with the Cape York natives, and that probably with only one or two tribes. Macgillivray found that only the Gudang Tribe was friendly with the Kauralaig. The miserable condition of the Australians precluded them from having much to offer to the Torres Straits islanders in the way of exchange. Probably the only imports were throwing-sticks and javelins or spears. The Muralug men obtained these from the mainland, according to Macgillivray, and they may have found their way to Mabuiag, though it is probable that the more northern islanders would usually make their own weapons.

The large canoes in the Straits all come from about the neighbourhood of the Fly River. I was told were cut and hollowed out at Wabad (Wabuda?) with a single small outrigger. Thence they passed the hands of the Kiwai and Mowat people on the coast of New Guinea, and across to the island of Saibai, are re-rigged with two outriggers, and a gunwale is in the canoe decorated with a figure-head, bow ornamented with feathers and shells. The canoes found their way to the other islands of the Division of the Straits.

If a man wanted a canoe he would communicate at Moa, who would speak to a friend of his at Badu, or possibly the Muralug man might himself go to Badu, or to a friend there. The Badu man would cross to Mabuiag to make arrangements, and a Mabuiag man would

----- If there was no canoe available at the place, word would be sent on, along the coast, that a canoe was to be cut out and sent down. The canoe would then follow the course of the verbal order, and ultimately find its way to Muralug. If a man in any of the intermediate places had a canoe to spare, he would sell it to the friend of the purchaser. If a canoe had to be made to order it would be a very long time before it arrived, as the message

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annually until the canoe got a
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he might make a single and 1

harpoon (was) or a shell ar-

id for their services by "charging

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It often happened that one man would evince peculiar aptitude for a certain kind of work, and he would naturally do it in preference to other work; for instance, a man would gain a reputation as a maker of masks, and he would make them for other people. I never heard of any pre-eminence being assigned to skill in handicraft as opposed to unskilled labour. No occupation is prohibited, and there is no system of training or apprenticeship; the young men carefully watch the old men in their work, and learn by imitation. I noticed that the son of a specialist was more likely to follow in his father's footsteps than another man.

There were no class of traders or places set apart for trade. Credit was only given in the case of canoes.

Trade Marks.—I was very careful to make inquiries about trade marks. There are certain marks in red paint on the side of canoes. So far as I could gather the islanders do not recognise these as trade marks, but consider them merely as ornament. I do not know whether they really are a kind of manual or not, and if so, whether the Saibai men understand a trade mark which is not understood by the other islanders. The other objects of trade mark, certainly none is put on

Values.—There was no money in the island. They have acquired a generally recognised value which is intrinsic, and not irrespective of the workmanship put into it. They are regarded as money; they are the dibi, shell armlet waiwi, dugong har-

valuable articles first, a good waiwi, one at the arm of a man, was the most valuable. The exchange value of a waiwi was a spoon.

Three or twelve dibi-dibi were considered of equal value to any of the above. These ornaments varied in size and finish, and have a corresponding value, thus no exchange can be drawn up. Three or four shells could constitute an annual instalment for a canoe. Five shells, *uradzi* or *waraz*, are also of value, when made up into necklaces. When fresh it is of a red colour, but "cook him and he come white."

It was generally rated at the highest unit of exchange, that is, at the price of a canoe, or wap, or waiwi. In 1849, a knife or a glass bottle was

The Ethnography of the

ed a sufficient price for a wife at Muralug. Now, usually give trade articles to their prospective parents. Friend Maine, the Chief of Tud, informed me that he had a samphor-wood chest full of trade, including) of calico, 1 dozen shirts, 1 dozen singlets, 1 dozen handkerchiefs, 2 dozen tomahawks, 1 fish spear, 2 fish lines, 1 dozen hooks, and he finished by saying, "By golly, he too dear!" a price was really paid, there was some foundation for it. His wife was a Mowat woman, and I once when I gave him a tomahawk in exchange he immediately said he would give it to his and he did too.

Weights.—There are no standard weights and Straits. Articles are counted by number (see or by length, as the case may be; the only unit of fathom. I could not get this name for this, only two, &c. The same applies to the Eastern Tribe; the a for fathom was *hax*.

er. — All the adult males, after initiation, are fighting men; as I know there is no exception to this rule. There is no mistant or conscription; it is a matter of course. In real war or when attacked by a foray, and in all engagements or doubtful intercourse with white men, the women at once hid themselves in the bush; but in scrimmages such as the marring fight, or when a small quarrel was to be settled by a fight, the women would stand a short distance behind their men and supply them with arrows or javelins. I never heard of permanent organization for war during peace, nor do I believe it existed; it is far more probable that it was extemporized at the outbreak of hostilities. Men never went far from their villages without carrying weapons of some kind or another. The blowing of a shell-trumpet or a smoke signal would cause them to congregate, should an attack be imminent. There was no distinct class of heralds.

I do not know whether leaders were ever formal but the ordinary men would naturally group themselves round a recognised warrior, or the crew of a canoe would hold together. The captain ("forehead man") of a canoe stood in the bow or on the platform, the man of next rank was the steersman ("mate"). The leaders had no special dress, the only exception I am aware of is a double row of cassowary feathers in the British. I have seen one worn by Kabagi, the British chief. It was a badge of office, it was merely a mark of distinction.

According to the legends of Sesere and the two Dorgai of Karapar, when there was a blood-feud some red paint (red-ochre) would be placed in the centre of the *kwood*, or men's quarters, and a couple of warriors would step forth and daub themselves with the paint, thus volunteering to be the champions of the quarrel. The other men usually followed their example, and would put themselves under the leadership of the former.

Judging from a war-dance which I saw at Muralug, the men advanced to fight in a column three or four deep, one can hardly term it marching, as the movements were too stealthy and tripping for that term, then they deployed into a semicircle and advanced in that form. As soon as a warrior had killed a man he proceeded to cut off his head with the bamboo knife, and strung it on the sling with an exultant "*wahū*," unless, of course, he had to fight someone else. I rather fancy that in ordinary engagements the combatants were fairly equally matched, and that each man would practically have but one enemy to encounter.

In the story of Kwoiam, when that hero had to fight single-handed against the combined forces of the Moa and Badu men, the Moa men suggested to their comrades that they should in an ambuscade behind a fence, and so draw Kwoiam to it that his back would be turned towards it; then when the men were engaging him in front those in ambush spring out from behind Kwoiam, and to kill him; but the men said it was useless, as Kwoiam had two eyes in his head in addition to those on his face. They then keep close together in attacking him. Even then they were afraid of the legendary warrior, and some said, "Very men whose brother Kwoiam killed go first," but one I heard back, some saying, "He did not kill my brother, you know." Eventually the battle was joined.

Kwoiam more than once attacked a village single-handed. His method of procedure was to steal up to the place at midnight, to pile up combustible material before the entrances to the village fence or stockade; then setting fire to it he placed himself at the largest entrance, and roused the sleepers with his yells. In a dazed and bewildered condition they naturally escaped through the non-ignited gate-ways where they were impaled by Kwoiam's javelins.

A favourite mode of attack of the Tud warriors was very similar to this. They would travel by night in their canoes, and arrive shortly before sunrise. Having stealthily entered the doomed house or village, the greater number of the men would remain outside the fence to cut off the fugitives who endeavoured to escape from the body of picked men who

tered the house or houses. The two reasons given for choosing this time for the attack were that they were dazed by being awakened suddenly in the dark, and they were further incumbered by having to fight before they had time to relieve themselves. To these, a third argument might be added, namely, that at that time of the day the vitality of the body is at its lowest, a fact which is known practically to our doctors and generals; this, combined with the other two factors, and the well-known advantage which active attack has over passive defence, would give additional advantage to the aggressors.

According to the legend of Sesere, the Badu men who went to attack him followed in single file behind the volunteer champions. On one occasion there were two of these columns and in another there were four.

I believe a distinction was drawn between different kinds of fights. The blood feud or reprisal for injury done would result in a fight in which no quarter would be granted, and the stronger party would despoil the weaker, and probably either capture the women or first abuse and then murder them. In head-sting forays the men simply made a raid on a village in order to possess themselves of the skulls of the slain, and thus to gain glory and the approbation of their women. On such occasions I heard that they did not take women prisoners or violate them. If a man was caught in the act of doing the latter he would be told, "We came out to fight, not to do that," and he would be killed. Lastly there would be the more or less ceremonial fights. Macgillivray witnessed and described such a one between two parties of Cape York natives (I, pp. 313-316 and Jukes (I, pp. 255, 256) had a similar experience at Ern. In both these cases there was a great deal of noise and an interchange of missiles, but as soon as one person had received a blow with a tomahawk, the fighting immediately ceased, and friendship was apparently restored. In neither of these cases was the cause for the skirmish ascertained; but Macgillivray suggests, "It was one of those smaller, usual modes of settling a quarrel when more than one person is concerned, and assumed quite the character of a fight on a large scale." A marriage-fight would have a different character, probably with even less serious results. I heard of a ceremonial fight at Saibai before a ship's party opened negotiations with those upon the shore. This some years ago, and I was told that the vessel, a schooner or a lugger, was boarded by the chief; then the ship's party flew, and the chief hid himself for protection; very soon the fighting ceased, and there were no casualties. The chief had to explain that he had to be gone through, and then better than

menced in a friendly manner. I cannot vouch for the truth of this "yarn."

Hunting and Fishing.—There was no true hunting in the islands, owing to the absence of land mammals. The pig has been introduced, and has run wild in one or two islands, where it is hunted every now and again. I do not know whether this pig is the New Guinea hog (*Sus papuensis*), or the more destructive, recently introduced European hog. The former one, I was informed, does not root up garden produce like the latter. The arrow, named *sikōri* or *skūri*, the head of which is made of a narrow split bamboo, is used for shooting wild pigs, and it is still used for that purpose in Daudai. I was informed that the same arrow was employed in warfare, always being so aimed as to rip open the abdomen. Now, the natives employ guns in hunting wild pigs; this is the only exciting amusement left to the Murray Islanders.

Birds were shot with bows and arrows. The archers would carefully conceal themselves behind trees, rocks, and stones, and often would make a booth of branches and leaves within which to hide themselves. With the exception of the Torres Straits pigeon (*Carpophaga luctuosa*), there are very few birds of any size in the Torres Straits Islands. These handsome white and black pigeons migrate from Daudai towards the close of the south-east monsoon, to breed in certain of the western islands of the Straits and in North Queensland. As the pigeons feed exclusively on nutmegs they only stay in those localities, such as the island of Danan, where the wild nutmeg-tree abounds. The birds return to New Guinea as soon as the north-west monsoon breaks. Gill says (p. 208), "The natives of Tut go out to and kill numbers of these birds with sticks and stones, while they go over the Straits on their way to Australia. Even birds from experience, for of late years these pigeons, having become wary, avoid crossing that island." Wild duck are plentiful in the marshes of Saibai, and various shore birds are on the less frequented beaches and sand-banks. The and sea-eagle (?) were occasionally shot for the sake of their long feathers, but of all indigenous birds the white egret, *Karbai*, was the most valued for its plumage, as the brilliant white feathers were used in making the effective "*dri*" head-dress as well as for other decorative purposes. Birds are now mostly shot with guns.

Shell-fish and fish are alone obtainable all the year round; collecting the former is exclusively a female occupation, but fishing is chiefly practised by the men. Fish are either killed with a plain pointed spear, often merely a stick sharpened at the end, or are taken in deep water with the hook and line. Their

are made of a strip of tortoise-shell so much curved as to form three-fourths of a circle, but from their shape and the absence of a barb they cannot be so effective as those of European make; indeed these last were at Cape York preferred by the natives themselves" (Macgillivray II, p. 20).

Line fishing was practised from canoes and off rocks. The bait was tied on to the large, barbless, turtle-shell hooks. I could not obtain any of these old hooks from the Western Islanders, but I bought several at Mer. The recurved portion of the hook varies in my specimens from two to three inches in length, and the loop has an average breadth of an inch and a half; the breadth of the flat hooks averages $\frac{1}{2}$ ths of an inch. This will give some idea as to how clumsy the native hook is. This is never used now, the natives employing European hooks when they can get them; failing these they make neat barbless hooks out of wire nails or anything else that will suit. Those I have are tied two as line, and with a small piece of thin twine fastened on hook for the purpose of tying on the bait.

Sting-fish is and was commonly practised, either while on the reef at low tide or from canoes. The spears are the simple pointed spear (*rad*) and the pronged (*taka*). This is usually made by lashing several wires to the end of a long spear, so that they slightly diverge from one another—formerly splints of wood were employed. At Somerset (Cape York) I procured one fitted with three barbed spines the sting-ray, and I believe these were occasionally used in the Straits.

The legendary discoverer of the art of catching dugong Sesere of Badu, was in the habit, according to the story, of shooting fish in the pools in the reef at low-water, with a bow and arrows. This is the only instance I ever heard of. Gu mentions that the bow and arrow is often similarly used by natives of Bougainville Straits ("The Solomon Islands and their Natives," 1887, p. 153).

Poison is occasionally used in catching fish. Whether it is a native custom, or was introduced by South Sea men.

There is at least one fish-weir on the reef at Mabua. I do not remember to have noticed one on any of the Western islands. The enclosure of large areas of low stone walls is very characteristic of the East. Some of those in Mer must be acres in extent. No traps are employed.

Turtle-fishing.—In the Straits there are two periods of turtle-fishing, the one during October and November, which is the pairing season, and when turtles are easily speared owing to

their floating on the surface of the water, the dugong spear being used for this purpose, or captured by a man, as will be shortly described. The other turtle-season extends through the remaining months of the year, when the turtle frequent the deeper water and the channels between the reefs. It is then that the sucker-fish or *gapu* is utilised.

When going on a turtle excursion a *gapu* is caught, and the more experienced natives have no great difficulty in procuring one when required. A hole is made at the base of the tail-fin, by means of a turtle-bone, and the end of a very long piece of string inserted through the hole and made fast to the tail. A short piece of string is also passed through the mouth and out at the gills, thus securing the head by one end. By means of these two strings the fish is retained, while slung over the sides of the canoe, in the water. When a turtle is sighted deep down in the water, the front piece of string is withdrawn, plenty of slack being allowed for the hind string. The sucker-fish on perceiving the turtle immediately swims towards it, and attaches itself to the reptile's carapace. A man, with a long rope attached to the right upper arm, dives into the water, and is guided to the turtle by the line fastened to the *gapu*'s tail. On reaching the turtle, the man gets on to its back, and passes his arms behind and below the fore-flappers, and his legs in front of and below the hind-flappers. The man is then rapidly drawn up to the surface of the water bearing the turtle with him. On the arrival of the diver the sucker-fish usually shifts position from the upper to the under surface of the turtle. At the end of the day's fishing the *gapu* is eaten.

The natives have a great respect for the *gapu*, and firmly believe it to possess supernatural powers. For example, when there is something the matter with the bow of the canoe, the *gapu* is said to attach itself to the neck or to the anterior shield-plate of the turtle; when the lashings of the float of the rigger to the thwart-poles are insecure, the *gapu* is believed to stick fast to the turtle, but to continually shift its position; if the strengthening cross-ties in the centre of the hull are faulty, the *gapu* is stated to attach itself to the turtle and then to swim away. More than once I was told, "*Gapu* is all same as man, I think him half devil." The sucker-fish is not used to haul in the large green turtle. I was assured that it would be pulled off, as the turtle was taken. The above information was gathered from several sources, and checked by means of much questioning.

Macgillivray states that Gi'om informed him that the natives of Muralug catch a small form of turtle, which he never saw, in the following manner:—"A live sucking-fish (*Echeneis*

Remora) [the only sucker-fish I saw was *E. naucrater*, A.C.H.] having previously been secured by a line passed round the tail, is thrown into the water in certain places known to be suitable for the purpose; the fish while swimming about makes fast by its sucker to any turtle of this small kind which it may chance to encounter, and both are hauled in together" (II, p. 21).

"The green turtle is of such consequence to the natives that they have distinguished by a special name taken from the animal itself (*sûlangi* from *sûlur*), the season of the year when it is most plentiful. [I have a note to the effect that '*surlal*' means fast, and '*sûrlangi*' the season when the turtle is 'fast.' This I obtained before I read Macgillivray's book]; this, at Cape York, usually extends from about the middle of October until the end of November, but the limits are not constant. During the season they are to be seen floating about on the surface of the water, often in pairs, male and female together. A few are caught at night on the sandy beaches, but the greater number are captured in the water. The canoes engaged in turtling, besides going about in the day, are often sent out on calm moonlight nights. When a turtle is perceived, it is approached from behind as noiselessly as possible; when within reach, a man in the bow, carrying the end of a small rope, jumps out, and, getting upon the animal's back with a hand on each shoulder, generally contrives to turn it before it has got far, and secure it with the rope. This operation requires considerable strength and courage in addition to the remarkable dexterity in diving and swimming possessed by all the blacks of the north-east coast and Torres Strait. There are some favourite look-out stations for turtle where the tide runs strongly off high rocky point. At many such places, distinguished by large cairns of stones, bones of turtle, dugongs, &c., watch is kept during the season, and when a turtle is perceived drifting past with the tide, the canoe is manned and sent in chase.

"The hawksbill turtle (*Caretta imbricata*), that chiefly producing the tortoise shell of commerce, resorts to the shores in the neighbourhood of Cape York later in the season than the green species, and is comparatively scarce. It is only taken at night when depositing its eggs in the sand, as the sharpness of the margin of its shell renders it dangerous to attempt to turn it in the water—indeed even the green turtle, with a comparatively rounded margin to the carapace, occasionally, in struggling for escape, inflicts deep cuts on the inner side of the leg of the captor, of which I myself have seen an instance" (Macgillivray II, pp. 21-23).

Dugong-fishing.—The dugong (*Halicorn Australis*) is the favourite article of food in the Straits, and its capture is an

extremely exciting occupation. This bulky marine mammal attains a length of eight or nine feet, and is a perfectly harmless vegetable feeder, its food consisting of one or two species of submarine flowering plants, allied to our common *zostera* or eel grass. Although it is found all over the Straits it is only abundant on Orman's Reef and over the unsurveyed expanse of reefs between Mabuiag and New Guinea. The former island is the head-quarters of the fishery of this sirenian.

Dugong were speared either from a canoe or from a bamboo platform, the *nad* or *nett*. The implement employed is the dugong spear or *wap*. This is a slender pole from twelve to fifteen feet or so in length, with a heavy, somewhat club-shaped butt. The opposite extremity is usually perforated by a long, slit-like hole and ornamented with cassowary feathers, and sometimes with white shells and the seeds used as rattles. A barbed peg or dart (*kwoiōrō* or *kwoiuro*) is loosely inserted in a terminal hole at the butt end of the *wap*. Macgillivray states that this peg was made "of bone, four inches long barbed all round," (II, p. 24). The specimen collected by the "Rattlesnake," now in the British Museum, is of a pale brown, close-grained wood. The old-fashioned darts I obtained at Mer were made of hard wood, and with two or three series of barbs; they were about seven inches in length. At the present time the *kwoiuro* is invariably made from a file which has been softened and cut with another file, and then re-tempered. The *kwoiuro* is lashed on to a long rope, nearly an inch in thickness, and some forty or fifty fathoms in length. The native-made rope is preferred for this purpose to European rope on, account of its greater buoyancy. The other end of the rope is made fast to the canoe or to the *nett*. (See Pl. VIII, fig. 1.)

When close enough the man bearing the *wap* jumps into the water, at the same time harpooning the dugong as it is in the act of breathing. The latter immediately dives down, and runs out the rope which is fastened to the dart, the man having to be careful not to get his head entangled in the loops of rope, as deaths have occurred through this accident. The man returns with the *wap* to the canoe. Other men immediately dive into the water, and when the dugong once more rises to breathe they tie a second rope round its tail, and then, whenever it attempts to rise, the men, by diving at the same time, pull it down with the rope, and in a very short time suffocate the unwieldy animal. So far as I know death always occurs through asphyxia. Owing to the thickness of the skin and the shortness of its point, the *kwoiuro* can never penetrate to a vital organ, unless it should happen to pierce the heart. At the same time the dugong is almost invari-

Domestic Animals.—The only domesticated animal was the dog, or rather the dingoo, from New Guinea. At the present time dogs are kept on a few islands, for use as watch-dogs, if for any purpose at all. The breed is thoroughly mongrel. There were and are no cats. Poultry is now kept by a few natives in one or two islands, but only, so far as I know, where there are South Sea men. The fowls are of no particular breed.

Pastoral Life.—Owing to the absence of any kind of cattle, there was necessarily no pastoral life.

Agriculture.—"Although on Murray and Darnley, and other thickly peopled and fertile islands, a considerable extent of land in small patches has been brought under cultivation, at the Prince of Wales Islands the cleared spots are few in number, and of small extent, nor does the latter group naturally produce either the cocoa-nut or bamboo, nor is the culture of the banana attempted. On the main land, again, I never

lightest attempt at gardening.

principal yam, or that known by the names of *kaias* is the most important article of vegetable food, as early throughout the dry season. Forming a yam is a very simple operation. No fencing is required, a of ground is strewn with branches and wood, which are set on fire to clear the surface, the up with a sharpened stick, and the planted at irregular intervals, each with the plant to climb up. These operations are at before the commencement of the wet season, or "betaban" (Macgillivray II, pp. 25, 26).

section allusion has been made to the state some of the islands. The islands of Baihai, and Mabuiag, of the larger islands, were per cultivation. Several varieties of the sweet-potato were, and are, the only root-crop grown to a small extent in a few islands. or at all events were, not abundant on absent from all of the Prince of

ably few occurred in Moa or Baihai. uag. They are plentiful at Saihai. As sent on the small islands; some grow in Nagir. bution of the banana was very similar to that The only agricultural implement was the pointed planting and digging yams.

I never heard of any cerea ionie or any other land for cultivation, cle an has his own land

Custom is for a ma

little as he thinks proper; there is no land cultivated by all the people in common. The land is absolute private property, and it is not periodically redistributed. Land is occasionally allowed to lie fallow. Every man has a sole right to the produce of his own gardens; there is no approach towards communism. I do not know that what we term a "year" is recognized by these people, and thus there can hardly be said to be New Year festivals. The recurrent seasons were doubtless marked by appropriate feasts and dances, but I am not aware that there was any distinct period of a general license or lawlessness.

Gelam, of Moa, is fabled to have introduced several useful food-plants to Mer, and Yawar, of Badu, was the agricultural "culture hero."

Boundary marks are of the simplest character, such as a branch or two, should any artificial delimiting mark be necessary.

Training and domestication of animals and relations of animals to man.—Originally the dingo was occasionally kept, I believe; now there is a mongrel breed of dogs, but these fortunately are not common. No birds are kept in captivity. Birds, dugong, turtle, and fish are caught. There are no indigenous land mammals, and very few birds, except during the annual migrations of the Torres Straits pigeon. The totem animals of the respective clans are sacred, but to that clan only. In some of their dances the natives represent the characteristic movements of certain animals, such as the ~~can~~ dance and the crab dance. Occasionally men are ~~named~~ after animals, as, for example, Baidam (shark).

The only mythical animal I heard of was "Kusa Kap," the antic bird, born of a woman.

Lice are, I believe, the only vermin; lime is rubbed over the portions of the body to destroy them.

—I never heard of slavery being practised.

Social relations.—See *Marriage, &c.*

Relationships.—My information under this heading is very meagre. Relationship is, I believe, traced in the male line. Property is evenly divided. No genealogies are preserved. Friends are addressed by name, not by title of relationship; in the islands of Nagir (and Muralug?), parents-in-law were never addressed by name, only as "ira" (i.e., parent-in-law). I suspect this custom was more widely distributed than I could ascertain, as I found it especially difficult to get information on the point.

It is clear that the Western Tribe of Torres Straits is in transition between a matriarchal and a patriarchal system of marriage on the part of the

islands, the tendency for the man to live mainly with his wife's people, and possibly the fair position of the women, may be regarded as matriarchal conditions—on the other hand, relationship is from the father, and the life of the wife is at her husband's disposal. Among the Eastern Tribe the patriarchal system is more pronounced.

Marriage.—I never heard of any tribal or other restriction to marriage. After repeated and careful enquiries I could get no trace of even clan (i.e., totem) restrictions. The forbidden degrees of consanguinity in relation to marriage are mother, sister, aunt, mother-in-law, and, at all events in some islands (see section on Tud), cousin, and the sister of the man's particular friend (*Kaumi*). There may be other restrictions, but I am not aware of them.

It was undoubtedly the usual, if not the invariable custom for the women to propose marriage to the men. The general method of procedure was as follows:—The girl gave a string to a mutual friend, who conveyed it to the man, and who acted as go-between. An appointment was made in the bush, which no impropriety occurred. For a typical conversation then ensued see account of Tud. In Mabuiag and elsewhere there was a period of probation, during

which the constancy of his intended, she all the time, and with his parents' sanction, the man

gave him food, which he never ate, but gave to his parents. An exchange of presents and food was made on the part of the contracting parties, but the bride had to give the larger amount, and the bride

pay the parents for his wife, the usual price being

one or two shell armlets, or goods to equal the value of his sister in exchange for a wife,

price. A poor man who had no sisters remained unmarried, unless an uncle took pity on him and gave him a cousin to exchange for a wife. At the time of the fight, but not very seriously, the bride

in Mabuiag the husband left his people and went to live with his wife's folk. This was probably, within a very general custom. I found a Muralug man living with his wife at Moa, and Mabuiag men living with Badu on that island, and *vice versa*. In the case of the latter portion of each year is also usually spent on his own island. On the other hand, Maino of Tud has a (New Guinea) wife, and in the same island a

drunken widow named Wagud, who had been married to a Tud man. I expect the custom is for a man

to marry a Tud man. I expect the custom is for a man

to reside with his wife's people when both live on the same island, or to divide his time between his own and his wife's islands when the islands are close together (as Mabuiag and Badu), or when there are intimate relations between the two islands, (as exist between Muralug and Moa) the preponderance of time being spent on the wife's island. When, however, the islands are far apart and the intercourse between them unfrequent, then, I fancy, the wife casts in her lot with her husband's people.

The method of courtship sketched above was not observed in Muralug to the same extent as in the other islands. In a future communication I propose to describe the former marriage customs of the Eastern Islanders, and then I hope to discuss this question in all its bearings.

Polygamy was practised, but polyandry was unknown. The first married wife was the head wife, and had control over the others. The wives lived together. There was no system of concubinage.

Marriage has no religious significance. There was no proper marriage ceremony, nor special customs or ceremonies before or after marriage on either side. I did not gather that there was any particular kind of dress or ornament worn either before or during marriage. The marital rights were enjoyed after marriage without any delay or hindrance. I know of no occasions on which men refrain from cohabiting with their wives, though it appears that at Mabuiag unmarried men refrain from sexual intercourse during the turtling season. I never heard of men exchanging wives.

I believe the wife enters into the family of the husband, but I am not sure that she joins his (totem) clan, supposing her to go to a different one.

As to the right of the husband is might, that of the wife obedience! The women appear to have had a good deal to say on most occasions, and were by no means down-trodden or ill-used.

The women of the Prince of Wales group were the worst off in this respect. At the present time much affection exists between husband and wife, and the men make devoted fathers. He often sees fathers accompanied by a little one, who not infrequently is perched on the shoulder. There is no reason to believe that this was different in the past.

My impression is that chastity before marriage was practically unknown, and that only flagrant cases of promiscuous intercourse were regarded with displeasure. There is no reason for supposing that it was a question of morality at all. It is a considerable difficulty in getting reliable matters concerning the relation

very good discipline. The self-restraint acquired during the period of complete isolation was of great value, and being cut off from all the interests of the outer world, the lads had an opportunity for quiet meditation which must have tended to mature their minds, especially as they were at the same time instructed in a good code of morals. It is not easy to conceive of a more effectual means for a rapid training.

The castigation the young men received at Tud and Mabuiag, although given as a test for bravery, was in itself a lesson of endurance.

The men who elected to practise sorcery further underwent a severe course of instruction and of disregard for personal comfort and well-being.

Initiatory ceremonies.—Ceremonies attending the initiating of lads into manhood were practised, but I could only get details in Tud, Nagir, and Muralug (which see). I did not hear of any ceremonies performed at puberty of girls.

Games and Amusements.—The men sometimes have trials of skill of shooting with the bow and hurling the javelin. On one occasion a large number of the Badu men came over to Mabuiag with javelins and throwing sticks, and for days afterwards there were "sports" in the afternoon. The usual mark was the stump of a tree about four or five feet in height and five inches in diameter. I judged that about ten per cent. hit the stump from a distance of about thirty-five yards; in some cases the points of the javelins protruded through the stump, with such violence were they thrown. The greatest distance I saw a javelin hurled was over eighty yards.

Sometimes a few Mabuiag men will throw a light kind of club (or stick with an enlarged end) along the hard sand beach at low tide; this slides along for a great distance, the object being to throw the farthest. They play at this walking along the beach and not from any one fixed spot.

The Mabuiag men are very fond of racing toy sailing which go along at a great pace. They only sail them near the shore, and quite close to it. The canoes are riged in the same manner as their own canoes, with mainsail, fore and jib. I have seen—I think it was at Badu—a small toy canoe with a leaf for a sail; these sail very well too.

A kind of hockey is played at Saibai and some other places. MacFarlane tells me that it is an aboriginal game. In my manuscript notes I also find "Play fights with blunt sticks." Game with balls, keeping them up. Merry dancing (dressing up with masquerade) and so forth, and running after and frightening the children. Wrestling and

syllables of a name of a person would be given, and the preceding syllables had to be guessed—as “*ia*”?—“*Sauia : Waria*.”

Womar, or *Womer*, a string game allied to our “Cat’s Cradle,” is played by children and sometimes by adults. I have seen it played at Muralug, Tud, and Mabuiag. The game was universally played throughout the Straits, but it is now dying out; its disappearance, like so many other native customs, appears to be coincident with the spread of “civilised” habits. For a large number of figures they start with the first one of our system of play, but I did not discover that they make any of our other patterns. Usually one person plays it alone, in some cases using the toes as well as the fingers, and often bringing the mouth into requisition.

The patterns are very varied, and many are extremely complicated in manipulation, although the final result may be simple. They are all intended to be realistic; in some cases the object represented is obvious, in others the imagination must be called into play, but other natives invariably recognise them, and different islanders make the same patterns. The following are some of the representations:—*umai* (dog), *korkor* (crow), *kaier* (spiny lobster or cray-fish), *gobai* (larva of the ant-lion), *pearaku* (a kind of fish), *ger* (water snake), *gud* (mouth), *urap* (coco-palm), *ngal ngal* (liana, or some other forest rope-like climber), others represent a family of “two picaninny” or “one picaninny,” a simple dug-out canoe or one with an outrigger, etc. Various movements appropriate to the object represented are also made—thus, swinging movements are given to the limbs of the spiny lobster; or, by drawing the hands apart, a sinuous motion is given to the snake.

I do not know whether there was any gambling game. I do not think there is much gambling now.

A Malay game of cards, *Jaro* they called it, was very popular at Muralug when I was there. It was very amusing to hear interpolations of English card-playing expressions in the native conversation during the progress of the game.

There are no animals used or kept for fighting.

There are no dramatic performances or juggling tricks. A certain amount of legerdemain was probably practised by the sorcery men.

Children play with toy bows and arrows, with which they often shoot small birds, and amuse themselves in the water with small fish spears trying to catch fish.

Dances.—The *kup*, or dance, was the great amusement of the Straits. It should be clearly understood that there were several distinct occasions in the social life of the natives when what was engaged in. There was the sacred

Dance of Death, and probably there were equally sacred Initiation Dances. Certain dances which only occurred on definite occasions, such as the musical peregrinations round the turtle-platforms at Mabuiag and elsewhere, or the seasonal dances, such as the *Waidutu Kap*, may be regarded as having a distinctly religious character, using this term in a broad sense. Lastly there was what I may term the "secular dance," or ordinary *kap*, which might be indulged in any day, and in which the women might also engage. The war-dance may be considered as a variety of the last group. In consonance with this classification I shall begin with the secular dances.

Secular Dances.—It is very difficult to describe such a dance as the ordinary *kap*. Like all semi-realistic dances it is composed of numerous figures which are in fact so many separate dances. I gather that there is no set order, and the performance may last for an indefinite time. The following are a few of the

whole company circles round and round the open space, with all sorts of gestures, cringing, swaying, tripping, the circling may be from left to right, or *vice versa*, one is called *gagai*, or "bow and arrow." Those were carried by the dancers, and the dance probably represents men on the war path.

A man advances singly and dances in a stamping-like manner. At Muralug this was called *moi i asim's*, and *moi i usimi* at Mabuiag, and was said to mean "put the fire out." Macmillan (II, p. 279) gives *mue utsimem* and its contraction *mue utsem*, as meaning "the fire has gone out."

In one dance the men continually stand on one leg and rapidly move the other up and down. This is called *dri gir* or *dri gzer*.

A similar one to the foregoing is called *gnar-a-puek*; one leg is raised after the other.

In the *gnar-a-taiermin* there is jumping with both

One dance, *karum-atapi*, represents the large lizard wrongly known as "iguana" in a swimming attitude.

In the *tadu kap* (crab dance) a man dances in a attitude with the upper arms horizontal and the fore

I have the names of a few other dances. So experience goes, the *auwai* (Muralug), or *auwai* (Mal "pelican dance"), concludes a performance. The

of the dancers stand together in the background. Then two men step forward (sometimes only a single man) and dance vertically on the tips of their toes on the same spot, as the drum-beats become more rapid, and is accelerated, and music, their

feet become almost invisible from the rapidity of their movement; it almost seems as if they are boring a hole in the ground, the dust rising in clouds. Naturally, this cannot last long, and when tired, the pair retire, their places being taken by another two, and so on, until all have displayed their terpsichorean skill, and a splendid exhibition of activity and *verve* it is. The spirit of emulation is largely evoked in this figure, and the onlookers admire and applaud the most vigorous and staying dancer of this particularly fatiguing step.

At Mowat, in Daudai, amongst other figures I saw the following. The men danced in a circle in single file either from left to right or from right to left; there was a pause after each evolution: during each circumrotation the men would perform some definite movement which illustrates an action in real life, such as agricultural, nautical, or fishing employments; for example, a man would crouch and move his hands about as if he were planting yams—or seeking for pearl shell at the bottom of the sea. These movements are well known to the spectators, though the foreign observer may not catch the allusion. I rather suspect that most of these movements have become conventionalised during innumerable dance representations, just as some of the adjuncts to the dances are degenerate representations of objects used in every-day life. In illustration of the latter point I may mention that I have seen weak painted bamboo-bows carried in the dance which were functionally useless, and at Mer I procured two bamboo knives and slings of a similar actor; slender useless clubs or miniature dugong harpoons be flourished; elsewhere in this paper I have described ornamented degenerate spare bow-string worn in the hand when dancing. These descriptive movements were commonest of the figures danced in the Straits, and I have seen them danced by Nagir and other islanders. As a matter of fact I believe that all the dances were originally imitative, but some have become conventionalised beyond recognition and are uninstructed.

Another more complicated figure I saw at Mowat consisted of men advancing in a line up each side of the dancing ground; the first pair who met retreated a little in the middle and still facing the spectators; when the next two arrived the first pair separated to allow them to pass between, and the new-comers took up their position behind the former, and so on, until the last pair passed between the gradually extending avenue of standing men.

At the same place I saw executed at Muralug the party deep, and at various times marched, and ever and again they all leapt

into the air, raising one leg, and shouted "*Wahu*" two or three times (with an emphasis on the last syllable), or they made this manoeuvre when arranged in a semicircle. Finally there is a rapid movement with exultant cries and with waving right hands.

The significance of this dance, or rather series of dances, is sufficiently obvious. It illustrates a band of warriors proceeding to attack a hostile party. The "*wahu*" is the cry they made when, having slain and decapitated their enemy, they wave the head on their cane slings, the refrain of the final measure being, "I don't fear anyone—I have slain a thousand men."

Religious dances.—Those of probably less importance are the processional dances connected with turtle ceremonies. The little I have to say about these will be found in their appropriate sections. I have definite information of but one seasonal religious dance. This I witnessed in Thursday Island early in November, 1888, and it evidently inaugurated the fishing season, which commenced with the approaching north-west soon.

Some time before the ceremony took place, the Nagir and alag natives who were living in Thursday Island made their preparations and practised their chant. I used to go and see the elaborate masks made and decorated. They were all of the same pattern, and consisted of the usual conventional crocodile's head surmounted by a human face; above this was fixed a representation of a saw-fish five feet in length; towering above its centre was a long, narrow, erect triangle covered with turkey-red and flanked with white feathers. Five different kinds of birds, from a bird of paradise to a pigeon, supplied feathers to adorn the remarkable structure, which attained a height of 1 foot six inches. The mask was painted with black, red, and a little blue pigment. In olden time such masks were made of turtle-shell—these were constructed out of oiled boxes and kerosine tins.

The dancing ground was in front of a small shed behind which the performers retired in rotation for refreshment. As the dances were usually at night, lanterns to illuminate the proceedings. There was great noise, and the dancing, which was practically confined to a narrow space between the wangs on each side; the two men (Mallang) performed a sedately capering step and crossed their arms, and ultimately retired to the end. The music consisted of a low, muffled sound, and slowly waved the arms. Two couplets of the chant were sung by a single man, and the wangs—when their part was over, the music was accelerated, and two men danced. The music, their

dance commenced on a Sunday afternoon, and was continued every evening and at intervals during the nights till the Thursday following.

The men wore the *tu*, or men's petticoat, made from the shredded shooting-leaf of the coco-palm; bands of the same leaf encircled the ankles and the leg below the knee (*duna kukur*), maybe together with the *makamak*, some wore the crossed shoulder belt (*kamadi*), also formed of the palm leaf. Armlets (*musur*) adorned the upper arms; in these leaves were inserted. In the right hand strips of the palm leaf were held, and the large mask covered the head; it was held solely by the teeth, not even resting upon the shoulders.

The song chanted on this occasion, together with the air, is given in full in the section dealing with *Music* (p. 374.)

I have a note of a dance called *kap garig*, which was held in Tud when fruit was ripe. The time was regulated by the position of a star named *Kerherki*. They danced for only one night, but kept it on till daylight. This would probably be a mask-dance.

It is probable that there were several other occasions when dances with masks would take place, and although I have no information on this point, I suspect that certain masks were reserved for particular occasions.

The most sacred of the religious dances were those connected with the initiation ceremonies of the lads and the funeral dances. Of the former I have unfortunately no account from the Western Tribe, though I have some details of that functioning the Eastern Tribe, which I propose to publish on another occasion. What I have to say respecting the funeral ceremonies will be found in the sections relating to the different islands.

Communications.—There are only foot-ways, which are not built or preserved save by the actual walking along them. There are no rivers to cross, or beasts of burden.

Painting and Scarification. *Painting.*—The custom of painting the body on various occasions was universal. The pigments used were red (red ochre), white (lime), and black (charcoal). At initiation the bodies of the lads were coated with charcoal. As far as I could learn this was for cleansing the skin, and for ornamental purpose. When going to fight, the men painted their bodies red, either entirely so or partially, perhaps separating the body and the legs below the knees, leaving the upper part of the body only. The body was painted by those who were actually engaged in the ordinary *kap* the face, body, and limbs were painted with red, white, and black, according to the dance. For dance the painting was much the actual conflict. I have seen boys and

heads put a spot or streak of red paint on their face for "flash," as ornament. Plastering the body with grey mud was a sign of mourning.

There is no eyewash or nail stain. The natives often rub oil in on their skins; sometimes they smear themselves over with lime, especially their scalps, to kill lice. The effect of this is to temporarily turn the hair red; it is probably this circumstance which has given rise to the statement of red hair being occasionally met with among the Papuans; at all events I never saw or heard of a truly red-haired Papuan. Wood ashes are also sometimes rubbed into the hair.

Cicatrices.—Tattooing is unknown; but the body used to be ornamented with raised cicatrices. According to Macgillivray (II, p. 13), these were formed by cutting the skin with a piece of glass, then a chewed leaf of a certain plant was introduced into the wound to prevent the edges from uniting, and a dab of wet clay was placed over all, and kept there until the necessary effect had been produced.

The Torres Strait Islanders are distinguished by a large conical oval scar, only slightly raised, and of neat construction, which I have been told has some connection with a turtle, occupies the right shoulder, and is occasionally repeated on the left" (Macgillivray II, p. 13). I suspect that a young man was not allowed to bear a cicatrice until he had killed his first turtle or dugong.

This cicatrice has been noticed by all voyagers to the Straits. Jukes gives figures of three men, in which it is very indistinctly seen; these are "Mamus" of Masig (I, p. 159), old "Duppa" of Mea (II, p. 236), and "Manu" of Erub (II, p. 237). These are also reproduced in "Sketches in Australia and the adjacent Islands" (Pls. XVI and XX) by Harden S. Melville, the artist who was aboard the "Fly." Gill also gives a sketch (p. 241), and states that "a symmetrical scar is made on the shoulder of all males in the [Danda] and in the Straits." Dr. Gill's sketch is very similar to fig. 3, Pl. VII. In a small book by W. E. Brockett, entitled "Narrative of a Voyage from Sydney to Torres Straits," sketches of "marks cut on the natives' shoulders," are given on his Pl. II. As all the illustrations in the pamphlet are very poor, too much stress must not be laid on their accuracy, but as the work is rare I reproduce the figures here. It will be seen that figs. 1, 3, Pl. VII, conform to other patterns here given. The unevenness of the lines in fig. 2 I take to be an error. I suspect that the same also applies to the fig. 5 I cannot understand at all. It is often extremely difficult to make out a scarification, especially when it has been

when advances forward and over to the opposite side of the screen. Their heads, as soon as they disappeared, were taken by two of the same time.

time. This is, so far as I am aware, practically the whole of the existing information on the subject.

The *koimai* (*koima* of the Eastern Tribe), as this scar is called, was cut either on one or on both shoulders. Its presence, either single or double, or its absence appears to have had no real significance. I was informed if a man had a fine shoulder and wanted to look "flash," he would have it cut on one or on both. Some said it was cut on "big men." So far as I could learn the pattern of the *koimai* represents the coils of the intestines of the fish "*karmia*" (Macgillivray gives "*karmoi*" as the Kowrarega name for *Scotophagus multifasciatus*); but I am doubtful as to this.

Not a single man of the Western Tribe, so far as I could learn, has a *koimai*, although I made repeated enquiries after it on every possible occasion, and of the Eastern Tribe only three old men residing on Mer possess it. These I have sketched. In the same island I saw and sketched a coco-nut water-bottle with a complicated *koima* engraved upon it, and lastly I procured a mask at Nagir, now in the British Museum, on which one was carved (fig. 8, Pl. VII). I have also seen very imperfect copies of it on the shoulders of two natives of Somerset, Cape York. Lastly there is a bamboo pipe from "Cape York" in the British Museum (fig. 7), on which two small *koimai* are roughly sketched. This pipe most certainly was ornamented by a native of Torres Straits, probably a Nagir man, as two large *koimai* are also represented, and a couple of snakes very similar to snakes cut on the backs of the women of the *Tabu* clan.

I was told by the chief of Mabuig that men would often cut a feather-like mark on the calf of the leg for the purpose of drawing the attention of the women to their fine legs and activity in dancing.

I was also informed by the chief of Mabuig and Tud that they might have three kinds of cicatrices.

Baga mina, or *Mauca usal*, a curved line of minute cicatrices extending from the corners of the mouth, up the cheek, and the cheek-bone. There is no previous record of this, and I have seen a woman so marked.

Mauca mina ("breast mark"). I saw only three women with this scar, and two of them were natives of Daudai; unfortunately, I have no information about the third. Melville saw only the two women, one from Erub, and the other from Daudai, and he sketches " (Pl. XVIII), but not in his illustrations of the death-dance. In the charms (*neur madub*), one of which I bought at Masig, though I bought it at Erub; for price or fancy; in which I saw it at Mer. Both of these are now in my collection as if engaged in an

3. The *Kibu mina* ("back mark"). This I have already referred to when dealing with Totems. I believe this was usually a totem "crest." So far as I am aware, no other author has alluded to this mark. The Masig love-charm has a *Kibu mina* (fig. 19, Pl. VII) of which I do not know the meaning.

Although none of my informants mentioned the fact, it appears that occasionally, at all events in the Eastern Tribe, women might wear a *koima*. Melville ("Sketches," Pl. XVIII) has a Daudai woman with what appears to be a lizard on her shoulder, and a Mer love-charm has a simple *koima* of an ordinary pattern (fig. 17). The only woman I saw with such a mark was a widow residing in Mer, but who came from Parem, in Daudai.

My informants told me that the first three cicatrices were cut when the girl first menstruated, and consequently they would indicate marriageableness.

If a girl was too free in her favours to the men, the other men cut a mark down her back, to make her feel ashamed; she frequently married without difficulty. A man in a corresponding delinquency would only have a charcoal mark painted on, for it must be remembered that "woman he steal man." is on the authority of the chief of Mabuiag.

The scars of numerous cuts and scratches, which are still made on any part of the body when ill or in pain, must not be mistaken for definite scarifications; the latter have now entirely ceased.

Clothing.—The men went entirely naked: when fighting they usually wore a *cod-piece* (*lorda*), a shield-shaped portion of the shell of the cymbium, and in some dances the men wore a tunic made from coco-palm leaves (*tu*). The women wore a petticoat; of these there were two or three various different fashions probably occurring on different islands. Mourning dress, *soger* or *sogerl*, consisted in most islands a long pendant of frayed leaves, usually of the palm, which was tied round the neck, and half of the frayed end hung in front and half down the back. I think this was the petticoat, but of this I am not sure. *Biswab*, armlets and leglets, of a similar material, were also worn.

No cloaks were worn, or any protection for the head from sun or rain, or any covering for hands or feet.

Personal Ornaments.—No ornaments were worn as a rank or to denote virginity.

Head.—The hair was, I believe, never allowed to grow long; formerly it was usually worn long by the men, and short by the women. When the men's hair was cut short or shortish, they would occasionally wear a headband;

cut in various styles, one of which is apparently on the lines of the antero-posterior cranial deformation formerly practised. A favourite fashion, now quite obsolete, was to form long ringlets by rolling the hair between the hands and saturating it with mud; this was termed *yalai*. The ringlets were twisted, never plaited. I believe that women very rarely wore their hair long; still we read in the story of Gelam that his mother dressed her hair as *yalai* when she wanted to personate a Dorgai. Wigs were made in all the islands, the hair of which was human and done in *yalai*. The hair is and was often reddened by the use of lime, but I never heard that lime was used for dyeing purposes, but only to get rid of lice. Feathers, flowers, and leaves are now, and were very frequently stuck in the hair, but I do not think that combs were used for ornamental purposes; it is true they are sometimes ornamented with a carved pattern, especially those from the Eastern Tribe, and Jukes figures an Erub man with a comb in his hair, but I have no recollection of ever having seen one so worn; they are always kept in a basket. There is a fair amount of hair on the face, but I never saw or heard of any luxuriant growth of hair, and it is certainly trimmed.

When cut short the hair has, owing to its frizzly nature, the appearance of growing in little tufts, a circumstance which has occasionally led observers into the error of believing that the hair actually grows in patches.

"The characteristic mode of dressing the hair among the Torres Strait Islanders is to have it twisted up into long pipe-like ringlets, and wigs in imitation of this are also worn. Sometimes the head is shaved, leaving a transverse crest—a seldom seen among the men, but not uncommon among and children from Darnley Island down to Cape York. At last place and Muralug the hair is almost always kept in a topknot, or fashion have their sway, for at Cape York at times for a week together seen all the men and lads with the hair twisted into little strands well daubed over with ochre and turtle fat" (Macgillivray II, p. 13).

The effective head-dress of cassowary (*sam*) feathers is usually called *wagori*, *dagoi* or *dagoisam*, the corresponding one made of the plumes of the bird of paradise (*dāgam*) is also called *dāgam*. The former sometimes has a central tuft of *dāgam*. I obtained a head-dress of a fish's teeth at Mabuiag, it was called *pikuri*. Fish teeth coronets (*umaidang*) were also worn. The finest of these is the *dri*, which consists of a fan-shaped arrangement of feathers of the egret (*karbai*). (Fig. 8, Pl. VIII.) Earrings and pendants were of frequent occurrence, but I have never seen or heard of actual ear rings. The lobe of the ear was pierced and the hole gradually enlarged until the greatly

the opinion of the celebrated biologist and anthropologist, K. E. de Baer, Member of the Imperial Academy of Sciences of St. Petersburg, who would not believe that manual pressure could have such an effect on the skull (*Vide* K. E. de Baer, 'Ueber Papuas und Alfuren,' *Mémoires de l'Acad. Imp. des Sciences de St. Petersburg*, 6 série, t. VIII, 1859, p. 331). K. E. de Baer expresses this opinion, analysing the information given by J. Macgillivray [see above]: he thinks that the observations of Macgillivray, who has seen the same above-mentioned manual deformation performed on children at Cape York, are not exact enough. Remembering this contradiction, I was careful to decide the contested point, and now, after careful examination, measurements, and inquiries, I believe the question may be regarded as settled, and that the information given by Macgillivray about the head deformation at Cape York was not too hasty, and was correct. As far as I know, it will be the only well-authenticated example of cranial deformation by means of manual pressure."

A. B. Meyer, in his admirable monograph entitled, "Ueber künstlich deformirte Schädel von Borneo und Mindanao im kōnigl. Anthropol. Mus. zu Dresden nebst Bemerkungen über die Verbreitung der Sitte der künstlichen Schädel-deformirung" ("Gratulationschrift an Rudolf Virchow," 1881), refers to cranial formation being common in New Caledonia, New Hebrides, Lemon Islands, the Woodlarks, and Ruk. It is also very common in New Guinea (Geelvink Bay, Waigeü, Rawak and

Deformed skulls have also come from Tenimber, Timor and Timor. Reference is also made to "Crania Ethnica" (p. 207), where Quatrefages and Hamy describe a deformed skull of a woman from Tud (Toud *sic*), which is figured in figs. 221 and 222. The same authors give a wood-cut (fig. 222) of profile of a cast of the head of a native of Tud, in which antero-posterior flattening is well shown. This deformation is to occur to a variable extent in the skulls from that examined by the illustrious French savants.

I have myself observed a mother stroking the forehead of an infant in the manner described above, and I have frequently seen the hair of men, especially of the young men, so cut in as to come on, as it were, the slant of the forehead, and thus to form a fairly straight vertical line, thus giving the appearance of a good-shaped head. When the skulls has been studied further information on doubtless be forthcoming.

referred to the piercing of the nose and ears. on it or was practised; front teeth were not commonly done in North Queensland.

Circumcision.—Neither circumcision nor any other mutilation of the sexual organs was practised.

Tribal marks.—So far as I know there were no marks which served to distinguish a member of the Western from that of the Eastern Tribe of Torres Straits, nor were there any party badges other than those relating to clan totems.

Totems.—All the information I have gathered on this subject will be found in the special account of the island of Mabuiag.

Dyeing. *Dyes.*—Some of the fringes of bast and vegetable fibre, of which the petticoats, *gugi*, were made, were dyed a deep dull yellow (turmeric), a chestnut brown, and a deep dull brown. The string-like constituents of the mourning costume, *soger*, were also similarly dyed. I do not know how the colours were produced.

Painting.—The pigments used in painting were white or lime obtained from burnt shells, etc.; black, the burnt shell of the coco-nut; yellow, yellow-ochre, said to be obtained from Saeber; red or burnt ochre; a hæmatite was also rarely used; and a bluish gray stone, possibly obtained from Moe and Labuag. This last was very rare and greatly-prized; it was their nearest approach to a blue. This latter colour is now often obtained from white men, and is valued as being an impossible colour for them to obtain from their own resources. Yellow was very rarely used, so that practically red, white, and black were the only pigments in general use. The colours were mixed with water, rarely, if ever, with oil. There is no varnish or lacquer. All suitable objects serve as brushes. Those in most common use are the frayed husk of the coco-nut, and the fruit of the Pandanus, one end of which weathers off in dense tuft of fibres.

There was no sacred colour, but red was their favourite; their sacred objects were usually more or less painted with colour.

Music.—The natives generally sing with a rhythmic beat of the drum as an accompaniment, but may not necessarily. I believe all songs are sung by men and women, and those chants used by the former only during the ceremonies.

The only chant I have taken down is in ^{six-eight} time, and is sung in unison; this is invariably the case. The songs themselves seem to be of a very simple nature, and sometimes consist of merely a couple of *nausem*. Drums and a primitive kind of orchestral instruments; two so to increase the strength of the voice, are used, by themselves.

two kinds, the large one of hour glass form and with a slit-like mouth (*warup*), and the smaller cylindrical variety (*buruburu*). Empty seeds (*gon*) or shells are often attached to masks or drums to serve as rattles. When dancing the rattle seeds may also be attached to a stick held in the hand or slung on a belt and hung in a bunch behind, or rattles may be tied on to the arms or ankles.

The drums have but one tympanum, which is beaten by the fingers of the extended hand only. They have no definite "tone," and have no contrivance by which the skin can be tightened or slackened as required; when the tympanum, consisting always of a lizard's skin, becomes too slack, it is heated; lumps of wild beeswax, "sugar bag," are usually stuck on the skin to increase its resonance.

There are no manufactured wind instruments, but a large *Fusus* ("bu") is used as a trumpet; so far as I have seen the mouth hole is always lateral. I made special enquiries, but never heard of any nose-flutes or wind or stringed instruments of any kind, but a bamboo Jew's harp was common.

The "bu" is used for conveying signals, but now at all events is most frequently blown when the natives are sailing, especially when going fast or racing.

Of a similar use to the above were the small shrill (*wainis*) and the lower toned (*bigu*) bull-roarers. So far as I could learn, after repeated enquiries, it was only in Muralug that the bull-r (*wanz*) had a sacred significance, as will be seen in the mt of the initiation ceremony, the women of that island only are not allowed to see it (this is an Australian feature). (Figs. d 6, Pl. VIII.)

There was a remarkable form of rattle (*pidditrong*), so far as unique, which was said to be employed in Mabuiag the turtle ceremonies.

pidditrong, according to my Mabuiag informant, was a seal-instrument consisting of a split bamboo, in which was tied a bundle of long thin sticks; the sticks were tied round a string, which, when pulled violently, made a loud noise. I have never seen one of them, nor did anyone in Mabuiag know how to make one. The above description was given at by verbal information. (The foregoing is an extract from my notes, and it was with great pleasure that I found the same instrument at Mer, where it is known as *lolo*. The *lolo* is not in use now, but I had several of them made for me. I was informed that they were employed by the young men as a rattle at night time. Fig. 7, Pl. IX, represents the one now in British Museum. The form of the split bamboo varied somewhat and was ornamented with a string to pleasure.)

A Jew's harp, *darubi* (*darobéri* of the Eastern Tribe), was in use in the Straits; it was larger in size than the ordinary New Guinea instrument, but like it there was a string with which to vibrate its tongue. It is not made now, though I got a couple made for me as specimens; these did not play properly. English made metal Jew's harps are much appreciated.

The drums all came from Daudai, the other instruments were of local manufacture.

Singing with a drum accompaniment is an almost invariable feature of all ceremonies and dances, but the Nagir men (possibly others too) have a very effective figure in a *kap* in which the drum only is beaten. Singing and drums may be heard when there is no *kap*, especially if the natives are practising up for one.

In the example of a song here given it will be noticed that each verse or couplet is repeated one note higher than the first; this, I believe, is usual; the couplets are repeated indefinitely, and the *Wa's* are opportunities for the natives describing them as "another

The following chant was sung at the religious dance inaugurating the commencement of the North-west Monsoon. The ceremony took place at Waiben (Thursday Island) early in November, 1888, and was performed by Nagir and Muralug natives. It represents the joint labours of my friend, Father St. H. Verjus, of the Sacred Heart Mission, and of myself, my reverend colleague being responsible for the music.

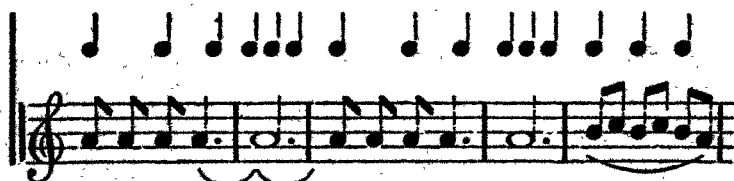
WAIITUTU KAP KUDU.

(As rendered by Kuduma of Nagir,
and Maruděn and Zagăra of Muralug.)

TAMBOURIN.

CHANT.

Prélude de
Tambourin.



Danabai he! . . . Mari naidem he! . . . he! . . .
Wa pönipen he! . . . Yawa böi he! . . . he! . . .



he! . . . *Wa! . . . 2. Ngita kai he! . . .*
he! . . . *Wa! . . . 4. Wapi senu ngapa!*



Ngai heka he! . . . he! . . .
Iabu ulaipe he! . . . pua sena ngapa!



Tawa patan he! . . . he! . . . he! . . .
Iabu malsipa! . . . Sanderal. . . he! . . .



Repetition.



1. *Ngai natan he! . . . Danabai he! . . . Marinaidem he! . . .*
 3. *Yawa böi he! . . . Wa pönipen he! . . . Yawa böi he! . . .*



he!
he!

he!
he!

Wa!
Wa!



2. Ngai he he!
3. Wai he he!

Ngai he he!
Lahu ulupa

he!
he!



Ah!
Ah!

Ah!
Ah!

{ D.C.
D.C.

After a very considerable amount of trouble I have arrived at what I believe to be the correct words and their interposition. A free translation is as follows:—

COUPLETS OF THE SAW-FISH DANCE, OR SONG OF THE NORTH WEST MONSOON.

1. Now I can see myself reflected in the pools on the shore as in a mirror.
2. You cut the shoot of the coco palm for me.
3. Farewell dead coco palm leaves. Ho! there's the lightning.
4. Fish now approach the shore, and we must build fish-ways in their route.

1. Refers to the glassy surface of the sea during the calm of the "North-West Monsoon."

2. The shooting leaves of the coco-palm are largely used in decorating the person during this and other dances.
3. The dead leaves fall off the palms at this season, and the lightning at night is a very characteristic feature of the "North-west Monsoon," and only occurs at that season.
4. Fish are very plentiful, and come in to shore; on the reefs of several of the islands there are built ridges or low walls of blocks of dead coral (stones), enclosing large areas; the fish that come in to the shore at high tide get caught in these fish weirs when the tide recedes.

Although this song is sung by the Muralag men, I believe it is not indigenous, because the coco palm does not grow in Maralug, and the natives do not construct fish-weirs. Coco palms are to be found in Nagir, and possibly they may have occasionally made a fish-weir as in Mabuiag; both features, however, are very characteristic of the Eastern Islands.

There are skilled musicians, but only in a very limited sense of the term, and I believe these are more or less restricted to one or certain clans. I do not know whether they teach their songs systematically to their children, probably the latter pick them up as they best can. I do not know either if they have good musical memories, or quick ears for fresh tunes, but I have often been surprised by hearing natives who had mixed much with sea men, or who had been to Sydney, whistling or humming songs which even my unmusical ear recognized as popular sea-air, but whether they were at all correctly rendered

~~space~~—I must reserve my notes on, and vocabulary of, ~~space~~ for some other occasion when they can be more considered than space here admits of.

When a large fire is made by one tribe it is often a signal of defiance to some neighbouring one—an invitation to fight—and may be continued daily for weeks before hostilities commence; it is answered by a similar one. Other signals by smoke are in use: for example, the appearance of an enemy upon the coast—a wish to communicate with another party at a distance—or the want of assistance—may be denoted by making a small fire, which, as soon as it has put out a little column of smoke, is suddenly extinguished by pouring sand upon it. If not answered immediately it is repeated. If still unanswered, a large fire is got up and allowed to burn till an answer is returned" (Macgillivray II, p. 7, 8).

Smoke is still constantly used for signalling. For example,

As I was at Muralug word had been previously sent that the men were to come from the other side of the island to Aiginisan dance before me. whilst we were waiting my companions noted a column of smoke which informed them that the men were on their way to join us.

~~Gestures Language.~~ The natives use gestures which have definite significations, and I regret that I did not put any of them on record. At present I can only recall one or two very obvious gestures. I did, however, pay attention to this subject in Mar. and will recur to it when I deal with the ethnography of the Eastern Tribe. Doubtless this language is common to the tribes.

lyrics. Poetical compositions are common, but I do not know how old they are, and cannot tell whether they are always in the precise ancient form. They appear to be known. I fancy there are certain clans whose more function it was to sing the chants at the dances, etc., not believe the singing was confined to them. Definite ones are sung on particular occasions, such as religious others, I believe, might be sung at odd times. The following are examples of the latter class; of these the first two were taken down at Mabuiag, and the last two at Muralug.

1. "*Zana nia dri widema sika*
which is, "The spray breaks on
white feather head-dress (*dri*)."

2 "*Bau idi laga usipa uhoha baua idi laga waria.*" So far as I could understand this means, "There is plenty of sea near the village of Bau" (the village at Mabuiag).

3. "I can't pull the canoe round the point, the strong. I will have to stay here twelve months, for round the point. I don't yet know when it will be fine so when I get fine weather I will go round the point to see how the people are getting on there, then I again."

4. "I got one fish on line, the one fish I heave the sinker; every sinker I got I lost. I got ten sink lost all besides my hooks; every hook I got I lost all the I could not get any more hooks than that."

My informant for the last two was a native tracker who spoke English fairly well. I took down his words verbatim. He has, in the last section, given a song which was chanted at a dance festival.

ing.—The art of any kind of writing was un-

World I

th 6 message sticks were emplo-

d. As previously in

The Murray Is

with women, and of dugong harpooned, and possibly of other facts, but there were no signs by means of which anyone could interpret the object of the tally. The notches cut in the blades of the bamboo knives indicated the number of heads which had been decapitated by that knife, and I believe that notches were sometimes cut in the handle of a stone club to record the number of people slain with that weapon.

Drawing and Ornamentation.—I intend elsewhere to describe the art and ornament of the Torres Straits Islanders.

Machinery.—There is no machinery, even of the simplest description.

Navigation.—Canoes of large size were formerly used for fishing and fighting. There were no special war-canoes. Small canoes were and are used by the women to go fishing on neighbouring reefs. The large canoes are still used, but a few natives own or have a share in the ordinary fishing lugger. These they employ in pearl fishing and dugong harpooning. Sailing by night is very rarely attempted, but the natives have definite ideas of steering by the stars, should it be necessary.

The large canoes of the Torres Straits Islanders of former times must have been very imposing objects when painted with red, white, and black, and decorated with white shells, black feathers, and flying streamers; and not less so when manned by noisy, gesticulating, naked savages adorned with cassowary coronets and shell ornaments, actively paddling or swiftly sailing, scudding before the wind with mat sails.

The body of the canoe is cut out of a single log, the ends gradually sloping up and coming to a blunt point. The sides are generally heightened by a gunwale board about four inches in height. The smoothed lower edge of this is laid on to the straight edge of the hollowed trunk. A split bamboo is placed, round outermost, against the joint, and the gunwale is lashed on to the trunk by string, which passes through holes previously bored posite one another in the gunwale and through the upper part of the trunk; a long triangular weather board is similarly lashed to the gunwale at the bow. A vertical flat end-board is inserted in the bow and at the stern. The central platform and outriggers are next added. Four bamboo poles, twelve or fifteen feet long, constitute the thwart poles of the outrigger, and, at the same time, form the framework of the platform. Two of the poles, about six feet apart, project a foot or two on one side of the canoe and stretch out some ten feet on the other, and the other two are similarly placed on the opposite side. A double-planked float, about eight feet long and made of light wood, is fastened on to the end of each pair of thwart poles. Two pairs of sticks spring like a V from each near end of the float and

embrace the pole, and to which they are securely fastened with string. The platform is made of lengths of bamboo, which run transversely to the length of the canoe. Each side of the platform is bounded by a peculiar kind of crate or wattled basket, built on to the platform. It consists of two rows of short vertical sticks and an outermost row of long ones, occasionally four or five feet in height (usually they run much shorter now than formerly). Long sticks were woven between the uprights, and the ends were also enclosed. Thus two long narrow receptacles were formed along the outer edge of each side of the platform in which were placed their fishing-gear, water-bottles, bows and arrows, and other belongings.

A pair of cross-ties strengthens the middle of the canoe. The paddles are about five feet long with a rounded oblong blade, and are very clumsily made, and without any ornamentation. A large flat board is used as a rudder at the stern on the windward side when sailing. The anchor is a large stone attached to a hawser and kept in the bow. Bamboo poles for masts and for punting the canoe in shallow water are tied to the sides of the canoe.

The sails are two in number, and are oblong erections of matting some twelve feet in height and about five feet wide. They are placed in the bows. The mats are skewered on to two long bamboos, which support them along their length; a bamboo stay also serves to keep the sail upright.

The following description by Macgillivray is better than any I could write:—"When desirous of making sail, the first process is to set up in the bow two poles as masts, and on the weather side a longer and stouter one is laid across the gunwales, and projects outwards and backwards as an outrigger. These are further supported by stays and guys, and, together with another long pole forked at the end, serve to support the pressure of the sails, which are usually two in number, made of matting pandanus leaves, and average four and a half feet in width, twelve in height. The sails have a slender pole on which the matting is secured by small pegs. When put up on end side by side, travelling along the means of a cane gromet. When blowing fresh keep a man standing on the temporary outrigger by his weight the inclination of the canoe to leeward the sail being placed in the bow these canoes make leeway, but when going free may obtain a maximum seven or eight knots an hour. Except in smooth water are very and the bailer (a melon shell) is used

"The largest canoe which I have seen

are those of the Murray and Darnley Islanders, occasionally as much as sixty feet long; those of the Australians are small, varying at Cape York between fifteen and thirty feet in length. Even the Kowraregas have much finer canoes than their neighbours on the mainland; one which I measured alongside the ship was forty-five feet long and three and a half in greatest width, and could carry with ease twenty-five people. The construction of a canoe in the neighbourhood of Cape York is still looked upon as a great undertaking, although the labour has been much lessened by the introduction of iron axes, which have completely superseded those of stone formerly in use. A tree of sufficient size free from limbs—usually a species of *Bombax* (silk-cotton tree) or *Brythrina*—is selected in the scrub, cut down, hollowed out where it falls, and dragged to the beach by means of long climbers used as ropes. The remaining requisites are now added" (II, pp. 15-16).

One canoe I measured at Mabuiag was just upon fifty feet long; the hollowed trunk was eight feet six inches in circumference, with an opening one foot wide. The platform was six feet ten inches across and seven feet three inches long. The inner side of the platform-basket was one foot in height, and the outermost, two feet five inches. The inner and outer receptacles were respectively six and a half and three and a half inches wide. The thwart poles of the outrigger were five feet five inches apart, and projected twelve feet five inches beyond the gunwale, or nine feet seven inches beyond the platform. The float was twelve feet long. One old canoe at Tad was sixty-seven feet nine inches long, the trunk was three feet six inches across in the widest part, and two feet seven inches deep.

Although canoes may be locally made in the Cape York district and in the Prince of Wales group and at Nagir, as Macgillivray informs us, and I too have seen a small canoe which was made by a Muralug native; this is only occasionally done, and those there made are probably all of small size. There is no doubt that all the large canoes in the Straits are and were obtained from Daudai. I describe the details of this trade in the section on Trade. The trunks were hollowed out in the vicinity of the Fly River, and fitted with only a single outrigger, as their's is only river navigation. At Saibai, I was informed, the canoe was refitted, this time with two outriggers, and an attempt at decoration was made. The figure-head or "dorgai" was fastened on as well as other bow ornaments, together with white shells and cassowary feathers. The canoes were further ornamented by the later purchasers, as they used to pride themselves on their fine canoes, and the Saibai

decorations, having a purely commercial significance, were rather scant.

The possession of two outriggers is characteristic of the Torres Straits canoe. The same kind of canoe, though of inferior size and construction, occurs at Cape York and according to Macgillivray it extends "from Cape York along the Eastern coast as far south as Fitzroy Island, a distance of 500 miles. At the latter place we found a small canoe with two outriggers concealed on shore among some bushes" (II, p. 15). These latter are evidently first or second-hand imitations of the Straits canoes.

The Daudai natives have canoes with but a single outrigger; up the rivers the canoes appear to be simple hollowed-out trunks; also right down the South-East Peninsula and among the islands off that end of New Guinea the canoes have only a single outrigger.

I was much puzzled when I first went to Torres Straits by occasionally seeing a canoe with a single outrigger. I afterwards found that it belonged to a Kanaker, from Ware, one of the New Hebrides, residing at Mabuiag, and that he had re-outrigged a native canoe according to the fashion of his own people. When I was staying at Mabuiag some natives of that island were fitting up a canoe in imitation of this one, and with a single outrigger. Here a foreign custom is being imitated; how far it will spread it is impossible to say; but strangely enough, the Eastern Tribe has entirely adopted the introduced fashion, and I did not see a solitary canoe with a single outrigger. At the Murray Islands, according to travellers, the canoes formerly had two outriggers, and there is a most excellent engraving of one at Erub in Jukes' Narrative (I, facing p. 169). Melville, the artist on the "Fly," in his "Sketches in Australia," has given two good figures of Erub canoes: that on PL XVII has a hut-like erection on the platform, that depicted on PL XIX is highly ornamented, and is a very valuable record of an obsolete craft. On being questioned, the old men admitted that the fashion had changed in imitation of the South Sea men. These outriggers support an almost continuous platform from near the float to about an equal distance on the other side of the canoe; the latter is what Lane Fox (Pitt Rivers) terms a "weather platform," and refers to it as being a South Sea rig ("Journ. Anth. Inst." IV, 1874, p. 430). This weather platform was not built on to the Malayan canoe, but in both cases there are several sets of the connecting sticks which attach the float to the outrigger proper, instead of only two, as in the case of the Eastern canoes, and further, the latter have the platform. In these Eastern islands the platform is universal use; they usually have a

mainsail, foresail, and jib; there is no bowsprit. Among the Western Tribe, European sails have not yet quite supplanted the original mat sails. Throughout the Straits the canoes are not decorated in the old style; in Mabuag I found two canoes which were more or less decorated, but utilitarian ideas are now too widely spread for the æsthetic faculty to be indulged in.

Habitations.—In Part II, I give short descriptions of the old habitations since they varied somewhat in different islands; at present a modified form of the ordinary quadrangular South Sea house is of universal occurrence, having almost entirely supplanted the old forms of huts.

Fire.—Fire was produced by simply twirling between both hands a vertical on a horizontal stick; in other words, the most primitive form of fire-drill. In revolving the upright stick the hands travel downwards, and on reaching the lower end are rapidly carried upwards. Wax matches are now in universal use amongst the natives, and it is only as a very last resource that they will revert to the tedious fire-drill. As a matter of fact the house fire is always kept burning, and from these fire brands are conveyed into the bush when they go to make their gardens or into their canoes when fishing. There is nothing sacred or mystical about fire.

The vertical stick is called *ini* (penis) in Muralug, and the horizontal stick *sagai* (I do not know the meaning of this word; *mad* is their name for vulva). Macgillivray calls the fire-sticks collectively "*salgai*;" in Mabuag the name given me was *guigui*.¹

String.—I am not aware of any animal substance being used or of ever having been used for the manufacture of rope, string, or thread. Macgillivray describes fishline as being "neatly made from the tough fibres of the rattan, which are first scraped to the requisite degree of fineness with a sharp-edged cyrena shell, then twisted and laid up in three strands" (II, p. 20).

String is often twisted or plaited from coco-nut husk fibre, and rope for hawsers of canoes or for dugong fishing is made from some climber, and is either twisted or made into a kind of plait; the latter is known as *am*, the former as *kwodai* (?). Macgillivray says that cables are made of twisted climbers of the *Flagellaria indica* (II, p. 16). No spindle whorls are used; all string is purely finger work, but a pointed stick is used in making the *am*. The skin of the large common orchid is used to

¹ *maerret* (Cape York) names are respectively *enchania* (penis) and *or*, as Macgillivray spells them for the Gudang Tribe, *achanya*. In the Eastern Islands the fire sticks are called *werim* (son), and collectively, *goigoi*; the revolving movement is called *drim*.

kind objects; it is of a bright yellow colour when dry. Bow strings are invariably made of split ratan.

Weaving.—There are no woven fabrics. Mats and baskets are plaited.

Pottery.—The art of making pottery is unknown. The melon-shell, *alup* (*Cymbium*), and large conches, *bu* (*Fusus* and *Triton*), were their cooking vessels. Most of the shell fish are cooked in their own shells. Iron saucepans now largely replace shells.

Leather Work.—There is no leather.

Basket Work.—Several different kinds of baskets are made. I shall describe these when, on another occasion, I treat of the manufactures of these people.

Stone Implements.—I could not obtain any reliable information on the mode of manufacture of the stone *aluba*. I am inclined to believe that the best examples were imported from Danda.

Metallurgy.—No metals were known to the natives, and none are worked now.

Memorial Structures.—I believe there were no memorial structures, unless the *Waus* comes under this heading. There are not any now.

Engineering.—There are no engineering works of any description.

Topography.—Boundaries are of a very shadowy character, but the bounds are well known to all, natural objects usually constituting delimiting marks; a felled tree, a branch cast down or something of that nature, are all the artificial boundary marks I saw.

The natives have a good knowledge of local topography—marine as well as insular. Not only has every geographical feature its name, but the land is divided into named districts and the coral reefs are all named. Their knowledge of position of reefs over large areas of the Straits is considerable.

I have not collected any geographical legends with the exception of the mythical origin of various prominent rocks and stones. The only geographical representation of which I am aware is a rough sketch of some hills, etched on a bamboo pipe which I obtained in Mabuiag, and which is now in the Pitt Rivers Collection at Oxford.

Swimming.—The natives are excellent swimmers and divers, but I did not take notes nor make any observations on the mode of swimming or diving, nor the length of time they can remain under water, though the latter struck me as being considerable. They usually have a

Natural Forms.—I shall deal with this subject in my proposed study on the Art of these people.

Conservatism.—Like all savages the islanders are undoubtedly conservative by nature, but a great change has come over them in this respect during the last fifteen years. I have already mentioned the alteration which has taken place in the rig of canoes and the style of house, both of which are imitated from South Sea men (Kanakers). The missionaries have introduced the universal calico gown worn by the women. As a matter of fact surprisingly little exists of their old habits, customs, and even beliefs. This can, I think, be accounted for in two ways: (1) The smallness of the population, even in the most populated islands, and the consequent direct influence of foreigners on every individual member of the community, which precludes a reserve population which might tend to counteract innovation; (2) The new civilization would appear to the natives to be so incomparably superior to their own that they would lose faith in all the past and accept the new *en masse*. When a new civilization is but little superior to the indigenous one, the process of adaptation will be but gradual, and "survivals" of the old will long persist; but when the contrast is great the change will be correspondingly rapid, provided that the two races are brought into contact and that the lower one is not eliminated. It often saddened me to see the sudden *volte face* which these people had made, and to hear their unconsciously pathetic references to the past. A few really seemed to feel regret for what was gone, especially my friend Maine, the chief of Tud. But the general indifference to legendary monuments or relics, the ready way in which they would usually part with things belonging to former times, the absence of artistic feeling in the decoration of their canoes or in wood carving, and so forth, plainly illustrated the sad degradation which accompanies the partial acceptance of another civilization.

Variation.—I have incidentally mentioned variations in implements, customs and so forth, and will allude to this again in Part II.

Invention.—I am unable at present to say what may be regarded as the inventions of the Torres Straits Islanders; probably they may lay just claim to the dugong harpoon and the dugong platform, and also to the peculiar rattle, the *padatrōng* or

INTRODUCTORY.

I have prefaced the account of the customs of the inhabitants of each island with a brief sketch of the physical features of that island, as these have, in some cases, naturally determined the conditions of existence.

I have dealt with the Western Tribe according to the groups or affinities laid down at the beginning of Part I. Commencing from the North I pass across the Straits and end with the least characteristic of the islanders. Several islands are not alluded to in this part, as I have made no observations on their anthropology, nor is there any account of the same by the author. I have so frequently quoted.

Saibai.—The island and its inhabitants ; War charm ; Birth customs.
Dowan.—The island and its people ; Turtle charm.
Boigs.—Short description of the island.

Hobbes.—The island and its inhabitants; Clans and their totems
and marriage; Marital relations; Relations between unmarried
women; Servage or usage; Institutions and practice; Sea-
crocodile; Boats; Rowing in connection with dugong fishing;
the boat and sail; The Arriving or Rain-man; The
national ceremonies; Kookwik, or ceremony for
the making of names; Names; Noe and
his fifty years ago.

Tud :—The island and its inhabitants ; Initiation into manhood (with code of morals) ; Courtship and marriage ; Customs relating to fighting ; Funeral customs.

Yam :—The island and its inhabitants.

Nagir :—The island and its inhabitants ; Houses ; Gardens ; Trophy of skulls ; Etiquette to parents-in-law ; Infanticide ; Adultery ; Charm for bravery ; Funeral customs ; Funeral ceremonies for Magau.

Waraber :—The island and its inhabitants.

Marig :—The island and its inhabitants ; Round house ; Maek.

Damat :—The island and its inhabitants ; Houses ; House on piles ; Water-holes and gardens.

Moa :—The island and its inhabitants ; Funeral customs ; Magic.

Muralag :—The island and its inhabitants ; Courtship and marriage ; Etiquette to parents-in-law ; Parturition ; Infanticide ; Naming infants ; Childhood ; Nose piercing and scarification ; Dress ; Textile fabrics ; Land tenure ; Initiation into manhood ; Warfare ; Various superstitions ; Magic ; Funeral customs ; Future state.

SAIBAI.

Saibai is one of the largest islands in the Straits. It is roughly ellipsoidal in shape, with a length of twelve miles, and an average breadth of three miles. The island is low, mainly consisting of a large swamp, surrounded by a narrow sand beach. I believe the ground to the east is somewhat higher. The channel between Saibai and Daudai is about two miles wide at its narrowest part, and it is scarcely navigable owing to numerous shoals.

The old style of house was, I believe, invariably built on piles, now the South Sea type of house is supplanting the other ; still, I saw a pile dwelling in course of erection.

The natives of Saibai were the "middle men" between the Western Tribe and the population of Daudai ; hence the island was important and well known. This did not, however, prevent them from doing a little head-hunting on their own account, but they evidently "collected" from the bushmen of New Guinea, and not from the coast-folk with whom they traded. The morals of the people of Saibai and Dauan were said to be very loose.

War charm.—Dr. MacFarlane has the following among his MS. notes : "Saibai god from Sumaiut—a stone given birth to by a virgin of Sumaiut [a village in the island of Kiwai, Fly River delta], the moon being father. Its power was first tried by the Sumaiut men upon the village of Kiwai [also in Kiwai Island], the raid being successful. It was afterwards stolen from Sumaiut by some Saibai men, and ultimately given up to the teacher in Saibai in 1882."

Birth customs.—Dr. MacFarlane has kindly permitted me to copy the following from his notes : "When a woman is pregnant the women assemble. The husband's sister makes the image

or a male child, which is placed on a mat before the pregnant woman, and afterwards nursed till the birth of the child, in order to obtain a male child. Women assemble in the bush and sit in a circle, the husband's sister gets a fruit resembling the penis, gives it to the pregnant woman, who presses it to her abdomen, and then hands it to a woman who has always borne male children, and she passes it to the other women. This ceremony is also to procure male children.

"A woman about to be delivered tells her husband's mother and relatives to follow her to the bush. She selects a good fruit-bearing tree (which must not have short leaves, lest the child should be a girl), and is attended by the husband's family only. The men are assembled at the *kuod*; if they hear rejoicing, they know that a male child is born, if there is no noise they conclude it is a female. They object to girls because they will ultimately get married and work for other men.

"The navel cord of a male infant is preserved, and worn suspended from the neck by the mother till the child is about five years of age, then carefully put away till the boy becomes a young man. He is then called to witness its burial beneath his bed, with the injunction that he is always to live there."

DAUAN.

Dauan or Tanan is a small very hilly island, seventy-five miles due north of Cape York, about five miles from the coast of Daudai, and two and a half from Saibai. It is triangular in outline, each side being about a mile and a half in length; the highest hill, Mt. Cornwallis, is 795 feet in height. Owing the weathering of the granitic rocks the hills have a very rugged appearance, the rocks being much fissured, and look as if boulders had been fantastically heaped one upon another. The island consequently but moderately fertile. There are, however, plantations, mainly on the leeward side. The bamboo is common.

Mr. Murray says (p. 456): "Even on Saibai and Tawan [the houses] are built on stakes eight or ten feet high. The houses we saw, both on the islands and on the *ri* [Daudai], are built chiefly of the bamboo. The roofs are thatched and the sides are enclosed with the pandanus leaf."

July, 1871.

Dr. Alberts (Vol. II) gives the following account of his visit at Dauan on December 1st, 1875 (p. 7):

"The village my curiosity was strongly excited by was the chief's house, of which the following is some idea. Two puppets

representing men, made of straw, are placed at about eight paces from the front of a sort of hut, made of branches and leaves. In the interior and outside near the entrance, hang strange ornaments in the shape of the eggs and entrails of turtles, which it is needless to say emit a horrible stench.

"On one side near the entrance there is a wide platform, supported on stakes driven into the ground; this is covered with the bleeding heads of turtles, which are no less offensive than the entrails and the eggs.

"The interior surface of the hut was covered with the bones and skulls of the same animal. On the roof are putrid heads, and all around eggs and entrails hang in festoons. I also observed inside the hut two human heads, partly painted red and half covered with the skin of a large sea bird with white plumage. I was told that [p. 8] these were the skulls of two famous turtle hunters held in great veneration by the natives, who present them from time to time with offerings of food, and also by smoking near them, enable them to enjoy the fumes of the tobacco, which they esteemed so much during their lives.

"To complete the description of this devil's house, I must add that all the shells of the turtles killed in the place are placed in one long row extending from the little temple to the beach. Perhaps by this the natives intend to signify that the turtle is sent by a sea-god to their island, to benefit the dwellers in it, and also wish to pay homage to the great hunters deceased."

On November 4th, 1876, he records (p. 208), "None of the men are entirely naked, all wear a piece of calico round the waist. The women frequently wear a kind of full chemise; they do not wear it for the sake of decency, but from luxury and pride; for I often saw a woman take off her garment and content herself with a tuft of grass before and behind. Some of the children were perfectly naked at seven or eight years old, while at Katow they are clothed from their earliest infancy." At the time of this visit there were only five shells of the turtle, whereas on the previous year there were sixty; and there were no human skulls.

BOIGU.

Boigu (Talbot Island) is a low, swampy island, five and a half miles long by two in width, near the mouth of the Maiasa River, and about twelve miles north-west from Dauan. When I visited the latter island I found the natives of Boigu had fled thither owing to their fear of the Tugeri pirates, a tribe of raiders about whom we have no reliable information at the present time.

MABUIAG.

Mabuiag (Jarvis Island) is a small island situated mid-way in the narrowest part of Torres Straits. It is triangular in outline, each side measuring about a couple of miles. The island is very hilly, and only moderately fertile.

The inhabitants were fairly numerous and were intelligent and energetic; dugong fishing in their speciality. Their houses appear to have been wretched erections as a rule, resembling those of most of the other members of the Western Tribe: now substantial grass houses are built. The *kwood*, or bachelors' quarters, so often referred to previously, is common to most of the Western Islands; it is a lightly-built shed with one side open and with a flat roof.

Clans and their Totems.—The people were formerly divided up into a number of clans, but there was no real distinction between the various clans in the life of the community. There was complete intermarriage both within and without the clan. Members of different clans lived together in the same house. A man belonging to one clan could not wear the badge of the totem of another clan. The children belonged to their father's totem (*auglid*).

All the totems appear to have been animals. The following are all the totems which my informants could remember, viz.: *kodal* (crocodile), *tabu* (snake), *waru* (turtle), *dungal* (dugong), *umai* (dog), *sam* (cassowary), *baidam* (shark), *kaigas*, *tapimula* (sting-ray), *dabu* (king-fish), *wad* (a fish with blue spots), *maiva* (great clam).

Kodal.—For a badge the men wore a piece of the skin of a crocodile or the totem cut on the right shoulder. The women had the totem cut on the small of the back (*kibumina*). The piece of skin was worn in front, attached to a string, tied round neck. It was never taken off.

If a *kodal*-man killed a crocodile the other *kodal*-men did him, but a member of any other clan might kill one with impunity.

Tabu.—The men had a coiled snake tattooed on the calf of each leg. The women had two snakes as *kibumina* (see fig. PL VII).

Waru.—The men had a turtle cut on the right shoulder, but the women cut a piece of the shell on the left shoulder.

When a turtle was caught on an expedition, the second only one turtle was caught. The first one was eaten, but the second one was not allowed to be eaten, but was given to the following day.

Dungal.—The men tattooed the totem on their right shoulders, the women as kibumina (see figs. 12, 13, Pl. VII).

The regulations as to eating dugong were the same as those for the turtle.

Umai.—The men wore no badge, but would brand their bamboo tobacco-pipes with the effigy of a dog. Women also were not tattooed.

If an Umai man killed a dog, his clansmen would "fight" him, but they would not do anything if an outsider killed one. A member of this clan was supposed to have great sympathy with dogs, and to understand them better than other men.

Sam.—The men had no mark. The women either tattooed the totem as kibumina or else tattooed a cassowary's leg on the calf of each leg.

No Sam man would kill a cassowary; if one was seen doing so his clansmen would fight him, as they felt sorry. "Sam he all same as relation, he belong same family." The members of the Sam clan were supposed to be especially good runners. If there was going to be a fight, a Sam man would say to himself, "My leg is long and thin, I can run and not feel tired; my legs will go quickly and the grass will not entangle them."

Baidam.—The men did not tattoo themselves. The women had the mouth of the shark as kibumina.

Kaigas.—The men tattooed totem on right shoulder. The women had it as kibumina.

Tapimula.—The men had no badge. The women tattooed a sting-ray as kibumina (see fig. 14, Pl. VII).

Dabu.—Neither the men nor women had a badge, but they would brand their pipes with the totem.

Wad.—The men had nothing. The women had totem as kibumina.

Maiva.—Both men and women would hang a very small clam-shell (*Tridacna*) round their necks.

No member of any clan might kill or eat totem of that clan. This prohibition did not apply to the totem of any clan other than that to which the person belonged.

There was a partial exception to this rule in the case of the Waru and Dungal clans, which is readily explained by the importance of the turtle and dugong as articles of food. In these islands flesh food is very scarce—and it would be too much to expect the unfortunate members of the turtle and dugong clans to abstain entirely from eating their respective totems.

The above information respecting the tattoo marks is given as I received it, but I do not feel quite sure that it is uniformly correct. I have sketches and photographs to show that the

dungal, tabu, and tapinula totems were cut into the small of the back of certain women, and there is little reason to doubt that this was a general and perhaps universal custom, although, strangely enough, no traveller makes any mention of it. I myself have only seen four of these markings; they were on old women and not very distinct. Owing to the present custom of wearing calico gowns the marks are not ordinarily visible, but in former days they would readily be seen above the petticoat. Pātāgam of Mabuiag belongs to the tabu clan, Adō of Badu to the dungal, as does also Wagud of Tud, who I believe originally came from Mabuiag, and lastly Mēke of Tud has a mark which I understand represents two sting-ray tails, and thus she belongs to the tapinula clan. Although I made repeated inquiries I could not discover that any other women in Torres Straits had totem marks.

Although the men of several of the clans are stated to have had their totem cut on the right shoulder, I am not satisfied that this was really the case. A complicated mark was certainly very frequently cut on that place (see my remarks on the *boimas*); there is no evidence that it ever represented an animal. Still it is quite possible that the men had distinguishing clan-marks; in fact, I think it very probable, only at present there is no proof of it.

Courtship and Marriage.—If a man danced well, he found favour in the sight of the women, or as the chief of Mabuiag put it, "In England if a man has plenty of money, women want to marry him; so here, if a man dances well they want him too."

When a man is fancied by a girl she makes a string armlet, *tiāpurūrū*, and gives it to the man's sister, or uncle, or friend, or at all events to a confidential person. On an opportunity occurring, the confidant says to the young man, "I've got a string for you." Knowing what is meant, he replies, "Give to me." He then learns the girl's name and receives her *sage*. If the man is favourably inclined he accepts and the *tiāpurūrū*, and sends the girl two leglets, *māk ā māk*.

Next the girl sends some food to the young man of her clan but he does not eat it, he gives it to his relation.

he says, "Perhaps woman he gammon." His parents ask him not to eat the food, and his mother warns him. "I after that his *ururu* good; suppose you like it, give her."

The girl as in some cases possibly the man makes it. But the man says, "Not up or by-and-bye you will see me and lady." At all events the

the girl is not
waits a month or even
He also informs his

parents that he is in no hurry to leave the old home, and that he does not wish to make them sorry by his absence.

While the young man is thus "lying low," the food is coming in all the time, and the man gives it to his mother. After a time the mother says, "When will you go and take her?" The young man then consults his immediate relatives and says, "Suppose you tell me to take her—I take her." All being agreeable, the "big men" of the village are consulted, and then the man takes the woman.

An exchange of presents and food takes place between the relatives of the two parties concerned, but the bridegroom's relations give a great deal more than the bride's. The bridegroom stands on the mat, and all the presents from his side of the house are heaped upon it. The bride does not stand on a mat, but takes the presents which her husband's relatives bring, and hands them over to her people. The bridegroom gives his wife's father some presents, say a canoe or dugong harpoon, or something of equal value. This is a final transaction. [I have in my notes that this is the price of a virgin; if she is otherwise her value is impaired, but I am inclined to believe that virginity was practically unknown. My informant (the chief of the island) not unnaturally wished me to have as good an impression as possible of the former morality of his people. Still it is quite possible that a girl who notoriously went with men would have an inferior money value.]

If a man already had a wife or wives, the young woman who admired him, with a view to matrimony, did not make advances through any of his wives. There would, in that case, be trouble, and the latter would probably put a stop to it. Approaches were made in the usual manner.

The men never made the first advance towards matrimony.

As an example of the strength of this old custom I may mention that when I was staying in Mabuiag the cook of the chief fell in love with a Loyalty islander who loafed on the mission premises. It so happens that this Charley Lifu was a brother of the teacher's wife. Now Charley did not want to marry a native woman, as that would settle him on the island, and he wanted to return home. More than once the cook wanted to marry him, but he refused. At length, on account of her persistence, he agreed to meet her in the bush and talk it out, and this time he finally refused. On her return to the village she accused him of attempting to "steal" her; this he denied, and it formed the subject of a big palaver before the chief, the South Sea teacher, and the old men. Charley Lifu was held blameless, as it was the general opinion that the girl had tricked him. The charge of order to force the marriage, a ruse

which signally failed. From my knowledge of Charley I quite believe him to be entirely innocent.

The missionaries, I was informed, discountenance the native custom of the women proposing to the men, although there is not the least objection to it from a moral or a social point of view; quite the reverse, as it gives the women a decided standing. So the white man's fashion is being introduced. As an illustration of the present mixed condition of affairs, I found that a girl who wants a certain man, writes him a letter, often on a slate, and he replies in a similar manner.

Polygamy, though previously indulged in, if the man was rich enough, has now entirely ceased.

Marital Relations.—After marriage the husband leaves his people and goes to live with those of his wife, even if it is in a different island, so long as they both speak the same language; if not, the man stays in his own island and the woman learns his "talk." There is considerable intermarriage between the inhabitants of Badu and Mabung; in such cases, the man will divide his time between the two islands. It must be remembered that both the husband and the wife own land in their respective islands, and both properties require to be cultivated and looked after; still this is not an entire explanation of the custom.

The husband has complete control over the wife; she is his property, as he had paid for her. If a wife caused trouble in the house, the husband could kill her without any penal consequences to himself. If her sister came to remonstrate with him he might kill her too. The payment of the husband to his wife's father gave him all rights over her, and at the same time annulled those of her father or of her family. If two wives quarrelled he could kill both.

The wife first married was chief; she was "master" of the others, and issued orders to the last married wife, who conveyed the same to the intermediate wives. If the wives refused work or were inattentive to the commands of the first wife, the husband was laughed at by his friends, and told he should not have so many wives. The wives all lived together; husband and wife always live together, even during the turtle season.

If a wife committed adultery both parties were liable to be killed by the injured husband. There was a possibility of compounding for the offence on the part of the man if he could afford to pay a heavy fine, if not he died. When the husband was informed of the adultery by a friend, he awaited a suitable opportunity to call his virtuous wives apart and to inform them of his intention. First he speared or clubbed the adulterer, then he killed his wife. If the co-respondent was a married man the aggrieved man took all his wives.

A man might divorce his wife, in which case she returned to her parents. Incompatibility of temper would be the usual cause for such a step. The husband had no control over a divorced wife. She might marry again, but the new husband would have to pay the old one, who would share the purchase goods with the woman's parents. I am under the impression that the price of a divorced woman was usually too high for her to readily find another husband. In the case of divorce, the father kept the children; but he might allow the mother temporarily to retain one or more, especially if they were very young.

Widows may marry again, and the children, if any, go with her.

Relations between unmarried men and women.—If an unmarried woman desires a man she accosted him, but the man did not ask the woman (at least, so I was informed), for if she refused him he would feel ashamed, and may be would brain her with a stone club, and so "he would kill her for nothing."

If it was notorious that a woman went with a man, both were branded with a small mark between the shoulders or elsewhere on the back. In the case of the man the mark was merely painted with charcoal; but the woman's skin was cut. The mark was an inverted feather pattern; the discrepancy in the branding of the man and woman being due to the fact that it was the woman's fault—she asked the man. When the man returned to the kwod, he was laughed at by the men, and asked when the marriage was to take place, for there appeared to be an honourable understanding in the community that they would make themselves honest folk. Possibly they might not care to marry, and then nothing could be done. If it was the man who was the cause, the girl's father told the men of the place, and him a sound thrashing.

A girl was fully grown and desired the pleasures and restraints of married life—as my informant said, "the father do." If she wants the men, how can he

an engaged woman went wrong with another man, "gammoned" might go to the woman, and was scolding her, strike her on the head with a stone he killed the other man too he would be exonerated

married men do not go along with unmarried women during turtle-season ("when turtle he fast"), that is during parts of September and November. If they do, they believe they would have no turtle, as when the canoe came, the male turtle would separate from the female, and both would dive down in different directions.

Magie, Instruction and Practice.—Apparently antedated into the mysteries of sorcery, but, as a very few were, owing to the unpleasantness and odour. I believe the word *lokaf* is analogous to "medicine," and *maid* really means magic or sorcery. A *maidelaig* is a man who understands magic and sorcery. For example, a *maidelaig* can cause disease and cure illness. He can lure dugong, turtle, and fish, or he can strike and kill animals with unerring aim, as the virtues of animal and vegetable products, and at all events such was his reputation.

To elect to this knowledge is inducted by a *maidelaig*, only instructs one aspirant at a time. He is taken into the house by the instructor, and the first operation consists in the aspirant being defecating into an *alup* shell (cymbium) filled with mixture, and in order that he may have the full benefit of it, he is enjoined to keep his eyes open whilst drinking. I was informed that *lokaf* were not drunk in Muralug or Nagir. It is said that if the eyes water during the process of training the novice will not make a good *maidelaig*, but if his eyes are red and dry he is all right.

Then he has to eat the raw fruit of the *kara* tree, which makes his eyes red and "inside bad," and also to chew "rope along bash," *gavai*; this makes the skin itch. Lastly, he has to eat some decomposing flesh of a dead man; the effect of this is to make his throat bad. Altogether he is in a very uncomfortable condition, with blood-shot eyes, feeling wretchedly ill all over, and in a semi-frantic state.

Sometimes a man will show the white feather after proceeding a certain distance with the discipline, and give it up altogether. It is believed that if a man is frightened, the medicines have some disastrous effect upon him. Occasionally a man succumbs to the rigour of the initiation, and dies. The course extends for about one month.

Maidelaig make a practice, both during the course of initiation and afterwards, when about to practice sorcery, of eating anything that is disgusting and revolting in character, or poisonous or medicinal in nature. For instance, they continually eat *merkai* (or flesh of corpses); one effect of this diet is to make them "wild," so that they care for nobody, and all affection temporarily ceases for relatives, wife, and children, and on being angered by any of them they would not hesitate to commit murder.

When he considers the young man is sufficiently instructed, the *maidelaig* tells him to take a stone and hit

and kills it "then he savvy," or to throw a stone at a lizard, which should be struck at the first attempt.

In order to demonstrate his own powers the new maidelaig takes a *kumar* plant in the bush and divides it into portions, at the same time naming some part of the body; these he puts all together in one place. When some men "talk no good" to him; he retires in the bush, takes a certain *kumar*, saying, "That *kumar* some of man," and throws it behind him. The man forthwith gets sick and is visited by the new maidelaig, who innocently enquires as to his condition. He is asked by the patient to kill the enemy who has wrought the mischief. This he promises to do, and taking up a stone pretends to throw it. If a maidelaig throws a stone into space, saying whom it is intended for, the projectile is quite as efficacious as if it had actually hit him, but in this case the maidelaig only humbugged, as he would not employ his charms against himself. The sick man gets worse, and he tells his father that he is very bad now, "Bone along me slew (creaked) last night." The father vainly tries to make his son better by cutting him (the universal panacea for all ailments in the Straits), and suggests that they should get some bush remedies. By this time the sick man is "all bone got no meat," and he asks the maidelaig to get him some *lokof*. He agrees, but takes a "bad one," and rubs it on the skin of the sufferer, the effect of which, of course, is to make the man worse, and at length he dies. The young man is satisfied that he "savvy *lokof*."

The maidelaig had a large house (*merkai mud*, "dead man's house") with a high, steep roof and low walls. Here were kept their *lokof* and the various appliances of their profession, and it was here that they performed some at least of their sorcery. If an unauthorised man or any woman entered a *merkai mud* they would die, but the sons of the maidelaig might go in.

Among the implements of sorcery were stone-clubs, spears, and a stone called *uruwain*, of a pointed ellipsoidal shape, which was stated to be hollow and filled with *lokof*.

There were figures of men and women in stone or bone, which were made very thin, "These all bone, no meat." One was bored in the mouth of each. (A number of rough stone figures have very recently been presented to the British Museum by Mr. Veitch, which are probably of this nature.)

A series of the figures corresponded with that of the individual to be injured. The stone images were used for rapid action on ones for lingering illnesses. For example, if another man was to be killed outright, he went to a sorcerer, ironed him well for the job. The maidelaig pretended to use the *uruwain* and put some poison

its mouth, and the man who was represented by the figure would die. If a man wished to punish a woman he made arrangements with a maidelaig, who put poison into a female wooden image, to which the name of the real woman had been given. The next day the woman was chilly, then became very ill and wasted away, and ultimately died, unless some counter charm was employed; but this must come through the instrumentality of the same maidelaig who caused the malady. One maidelaig could not counteract the work of another.

On showing the wood-cut of an upright wooden figure of a female on p. 186 of Jukes' "Voyage of the Fly," Vol. I, to the chief of Mabuaig, I was assured that it was an image for *maid*. He said the Maidelaig "kissed" the post and besought it to "Help me to kill (so and so) to-day," and he would put *lokef* into the orifices in the figure.

Sortery with a crocodile's tooth.—A maidelaig, whether belonging to the *kodai* (crocodile) clan or not, might exorcise with a crocodile's tooth. He would take a large tooth of a crocodile, paint it, and fill in the hollow base of the tooth with various kinds "bad bushes," and finally rub the tooth all over with the fat of a corrupt human corpse. He would then take a long rope and tie one end to a young and slender tree, and put the anointed tooth in the fork of the first branch. The maidelaig would say to the tooth, "You go into that man (naming some individual); do not go all over his body; you go into his heart. Are you ready? Stand by!" The man then pulled the free end of the rope so hard that "it come thin" (the rope was a plaited one) as if it would break. Suddenly letting it go the rope sprang back, and the recoil of the bent tree caused the tooth to shoot forward—and the man died.

A crocodile's tooth was also used for incendiary purposes which case it was instructed by the maidelaig in this way: "Don't be lazy, you look very smart, you go and burn do that house."

Sortery in connection with dugong fishing.—A maidelaig a stone carved into the image of a dugong, in which is a cavity; into this he put "poison medicine, or and thing along reef and sea-water, he stir up and p

Smooching a man who had harpooned a dugong, along the latter might say "I am a man, give you a good night to a reef and sea-water, wait for me, by and bye some day, so I go home." When the image into the water to harpoon it, but

when in the water his neck might get fouled in the rope, and so he would be drowned. Thus would the charm work and the maidelaig be revenged.

Sorcery with the head of a flying-fox.—There was also some magic connected with the head of a flying-fox (*sapura*) which I could not quite understand. The head was stuck on the end of a stick, and then shot like an arrow into the roof of a house. The people of the house would then give food (presumably to appease the maidelaig, and to avert any evil).

The Aripuilaig, or Rain-man.—If a man wanted rain he went to the *aripuilaig*, and asked him to make it rain. The latter would reply, "You go and put some more thatch on your house and on my house." This was to keep out the forthcoming rain. The *aripuilaig* took some plant or bush, and painted himself black and white, "All along same as clouds, black behind, white he go first." He further put on a large woman's petticoat, or *gagi*, to signify raining clouds. Having performed the requisite ceremony the rain fell.

After a good deal of rain had fallen everybody was hungry, as they could not go out to get food, and the ground was all wet; so the instigator of the rain requested the *aripuilaig* to stop it. To which request the following answer might be given: "To-morrow rain small, next day sun he shine." To stop the rain the *aripuilaig* put red paint on the crown of his head (to represent the shining sun), and inserted a small ball of paint in his anus. By-and-bye he expelled the latter, breaking a cloud so that sun he may shine." He then took "bushes" and leaves of the pandanus, mixed them and put the compound into the sea; next he took them and burnt them, and finally burnt them so that the smoke thereby typifying, as I was informed, the evaporation and of the clouds.

Aripuilaig was paid by the man who asked for the rain.

Gubaupulaig, or Wind-man.—A man who wished for order that he might sail his canoe to go and spear went to a *gubaupulaig* to proffer his request. Pre-
t is necessary. The reply would be in some such manner as, "To-morrow the wind will come in puffs, that means a row on the following day; so you all go and make fast moor with three or four ropes." The *gubaupulaig* painted himself black behind and red on his face and chest. The red in it typified the red morning cloud, the black indicated the blue sky of night. He took some "bushes," and firmly fixed them at low tide at the edge of the reef, the flowing tide causing them to swing backwards and forwards. If only a little "bushes" were fixed nearer to the shore

In due time the wind came with a steady blow, and the men went out and obtained their dugong. Should none of the meat be given to the wind-maker, he causes the wind to continue blowing so strongly that no canoes can venture out to sea. After a few days he strolled round to the *kwod*, or bachelors' quarters, and jeered at them. "Why don't you go out and get some dugong? You will be hungry!" Then they knew why the wind was so strong, and they gave him a present to stop the excess of wind, for only he who raised the wind could allay it.

To stop the wind the *gubampulaig* painted himself red and black, the latter to represent the clear blue sky, and taking the "bushes" from the reef he dried and burnt them. "Smoke he go up and him clear up on top."

All the "correspondences," as Swedenborg would call them, with the exception of the one in brackets, were explained to me by my informant.

Funeral Ceremony.—When a man died the thumbs and the big toes were tied together and the body was wrapped up in a mat, which was either sewn with string or skewered; the head was not tied up fast. The corpse was carried out feet first, as otherwise they imagined the *mari* (spirit) would return to the camp. None of the immediate relatives carried the body; they remained behind.

The body was placed upon a framework supported on four posts (*sara*), and a roof of coco-palm leaves built over it, the relatives standing round and weeping. A fire was lit on the ground at the feet of the corpse for the *mari* to warm itself, for "dead man he cold." Some of the belongings of the deceased were hung on the *sara*, and food was also placed there. If the latter was found scattered the next morning, they said, "*Mari* wild, he chuck all food about." *Mari-göta* (the spirit hand) was, I believe, the name given to the man who watched the corpse during the first night to see if anything happened, and to report thereon, for he might discover by a sign or another who it was that had practised sorcery upon the deceased. He also made passes over the body *mari*.

After several days the relatives returned to the body mourned, one of them (brother-in-law?) beat the roof with stick, and all shouted "*ü, ü, ü*," to drive away the spirit remains ("to drive rest of devil out"). (One informant said no noise was made.) If they did not perform this ceremony they could not take the skull, as it stuck to the body and was too heavy. The "brother-in-law" removed the head with the jaw, and placed it in a termite nest (white ant), but

clean it. By this time the body was somewhat decayed, and the grease ran down the posts. The body was then covered with grass, and ultimately buried.

The mourning costume consisted in covering the body with (coral?) mud or ashes, and wearing a reddish *sogerl* (see section on Dress, Part I). They did not dance when in mourning; when the mourning was over the *sogerl* was thrown away. The mourning was said to last for two or three months, but no reliance can be placed upon the natives' idea of time.

When the day was fixed for the funeral feast, the women "make mangrove," i.e., *dim*, while the men went to catch turtle.

The "brother-in-law" took the skull (*padakwik*), which was by that time clean, and painted it red all over and placed it in a basket (*yēna*). The mouth of the basket in front of the head was skewered by the nose ornament (*gubu*) of the deceased, his *dibidibi* was hung in front, and ear-pendants (*muti*) attached to the sides of the basket, and feathers of the egret were stuck round the open part of the mouth of the basket. Sometimes the skull itself was decorated, pearl-shell eyes were inserted in the orbits, and the nose and face were made of turtle-shell (?).

At sundown of the appointed day the feast commenced, and by the right-hand corner of a mat the food of the "brother-in-law" was placed, that of the father of the deceased being deposited at the left-hand corner. The "brother-in-law" painted himself all over, including his hair, with black (?) paint. The relatives, but not the father, provided themselves with spears and arrows, and wore the *kudig*. The "brother-in-law" took the basket containing the skull in his hand, presenting it to the father, deposited it on the mat, the men who surrounded the father crying all the time. "Some man, he talk, all stop cry—go and make *ai purutan* (feast)." The head in its basket was put in the father's house. The principal ceremony appears to have been that the skull was taken and prepared by a near relation—brother-in-law or uncle—and given by him to the nearest blood relation—father or brother.

After the feast came the funeral dance ("make him devil"); this appears to have consisted of three main episodes.

In the first figure there were three performers, who were all men, though the central man was dressed up as a woman (*kamotai*), the other two were termed *Merkai*. Each *Merkai* was painted black, on his head was a head-dress (*Merkai kwik*) which completely covered the upper portion of the head and the face. A red band extended across the forehead; from this four long red filaments extended vertically; they were ornamented with feathers. Three others projected

seniorly, one central, two lateral. A kind of breast plate (*der*) made of coco-palm leaf, which formed a sort of yoke round neck and extended down the chest, being tucked beneath the belt (*wakamal*); a petticoat (*tu*), made of the shredded pinnules of a sprouting coco-palm leaf, was worn. A *samerai*, or long tuft made of cassowary feathers was inserted behind. *Musur*, *kadig*, *ludig tang* were worn on the arms, and *brua* and *wakamak* ornamented the legs in the ordinary manner. Bow (*gagai*) and arrows (*laid*) were carried. (I obtained at Moa a flat crescentic piece of wood with a projecting portion; this was held in the mouth of a *Merkai*, when dancing, in such a way that the convexity was presented forwards. This mouth ornament (*gud*) was painted red and white, and decorated with cassowary feathers). The *Iptamerikai* was also painted black, and wore the *Merkai* *kwit*, but the woman's petticoat (*gagi*) took the place of the men's *tu*, *musur* only encircled the arms, and *brua* the ankles. The body was ornamented with a *dibidibi* and two *yapara*, or a set of alternate red, black, and white, which extended from shoulders to the waist. In the hands were held brooms of the dance name being *lure* or *kusuling*).

A three performers advanced from the bush, and coming the light of the fire, for the dance took place at night, they ceased their sedate marching abreast, and began to dance. The *Iptamerikai* put his hands together in front of his chest, holding the brooms outwards and upwards, while he danced.

When the figure was finished the three retired, and the two *Merkai* re-emerged from the gloom; this was, I believe, repeated two or three times.

Lastly, one *Merkai* came forth, and behind him was *Danilkau*. The latter was painted black, with a head containing a single plume (*waipal*). He was ornamented *dang-a-mari*, *kamadi*, *musur*, and *brua*; round his waist *wakawal*, from which was suspended in front a coco-nut vessel (*gud*) [probably a pair of vessels], and behind there a *padu*, or grass tail. A *lorda*, the triangular shell arm, carried on the side of the thigh. Leafy twigs (*zarzar*) were in the hands. The *Danilkau* skipped and jumped about the *Merkai*, but it was a point of honour to keep exactly the latter, so that the *Danilkau* was not (or was not supposed to be) seen.

Friends, not relatives, dressed up as above. They were supposed to be too sorry to dance. They were not allowed to witness the dance, but not perform. They did not know who the dancers were it stuck to the body and removed the head with the that night. After an interval of some time (I am not sure of the time) but

feast was held. The basket was again put on the mat, and the "brother-in-law" took off the trappings of the basket and sewed up its mouth. The father took the basket containing the skull, and kept it in his house. After this feast they had a secular dance, or *kup*.

It is right to add a reminder that I have not seen one of these funeral ceremonies, and that the above account is derived solely from descriptions by natives, but I have done my best to gain a true conception of what did transpire. With regard to the costumes of the dancers I followed my usual practice of making sketches of men and their clothing, and decorating them according to description; with the costume thus visualised before them my informants recalled fresh facts, and pointed out where alterations were required. I could not get the natives to make me the head-dresses in the old style, though I repeatedly asked them to do so, and they often made promises.

Kaukwik.—When the lads begin to grow a small moustache, but before the beard had grown, they were taken to the *kwod* by the old men, and a fire was lit. The young men lay face downwards, at full length on the ground, a short distance from the fire, their heads resting upon their arms. The old men put leaves the coco-palm on the fire, and when they were alight whipped the backs of the lads with them. If one of the latter got up and away, he was "no good," and they laughed at him. The lads was much burnt, and when the castigation was sh water was poured over them.

to discover that there was any other ceremony than when lads arrived at puberty; this is evidently a bravery of the young men, and has nothing to do with manhood. *Kaukwik* simply means "young similar but less rigorous custom obtained in Tud.

thing could be taboed by tying a piece of wood, is, or what not on to it. If a man took anything old die.

old custom of changing names, *natam*, is still out the time I was resident in Mabuiag a large

of that island changed names with their from Badu, who were over on a visit. For example, the Mabuiag, a man well advanced in years, exchanged names the young Badu man who was married to a Mabuiag widow the child, during my visit; thus the chief of Mabuiag is now "Nomer" by name, but "Manga." This custom has a nearly significance, I believe. I was told that a

changed more than once.

face. A was so custom of "big names" and "small names." I think the "big names

was given at birth and the "small name" later on. Possibly the latter was in reality a kind of "pet" or "family name." I heard the word *abir* used in connection with the "small name."

Nose and ear piercing.—The *piti torti*, or hole in the septum of the nose, was bored with a needle made of turtle-shell, because the septum was soft. This was done a few weeks after birth.

The holes in the ear were bored with fish-bones, turtle-shell not being strong enough; the hole in the ear was continually enlarged, and eventually the skin usually carried away on the inner side, or was purposely so cut, leaving a long dangling lobe of flesh.

Customs relating to turtle-fishing.—Formerly the shells of turtle were placed on a long platform (*agu*), each man or crew of a canoe putting their turtle in a heap by themselves; those having the greatest heap at the end of the season acquired the greatest glory. The *agu* was made of bamboo, the bamboo staging being covered with coco-palm leaves; on these were placed the turtle trophies. Hanging all round the sides of the *agu* were numbers of *bigu* (the *bigu* was a large "bull-roarer," carved and painted, which was in a state of constant rotation when the wind blew, and as the S.E. trade wind blows continuously for about eight months in the year, the *bigu* was practically perpetually vibrating). (One of these was made for me by the chief of Mabuiag, and it is now in the British Museum.) On the top were placed numerous *padatrong* (I have already fully described this peculiar rattle). A small kind of "bull-roarer," the *wainis*, was also associated with this rite, but they were kept in the bush. The use of the *wainis* was learnt in a clear space, not in the bush. Men and women could alike see it, "It was half play."

When the men went out to catch the floating turtle, they took a *bigu* from the *agu* and swung it over the canoe preparatory to starting. When the canoes were expected to return, a man would station himself on a hill to look out. In due time he would see the under sides of the captured turtle gleaming in the ceaseless canoes while yet a long way off; then he whirled a *w* and the women knew that the fishers had been lucky. not done if the men fished with the sucker-fish (*gapu*).

On the arrival of the canoes the men first went to before cutting up the turtle. They marched round the *agu* *bigu* and *wainis*, and pulling the *padatrong*, always from left to right; if they marched in the counter three the turtle would go away from the shore. The *agu* *bigu* *wainis* *padatrong* *comm* to Daudai and the Western Islands.

Unmarried men were prohibited unmarried women when the turtle and turtle could not be caught.

BADU.

Bādu (Mulgrave Island) lies five miles south of Mabuiag. It is an irregularly shaped island about six miles in diameter, and hilly in the centre. There is a good deal of low-lying wooded land.

As previously mentioned, the inhabitants are very closely allied in speech and by marriage with the Mabuiag people, but they have very little communication with the natives of Moa—though the latter island is separated from Badu by a shallow channel which averages only a mile and a half across.

I saw three types of houses here: (1) huts, consisting of little more than two sloping walls meeting like a roof, evidently an indigenous structure; (2) a small house on piles, of the New Guinea pattern; (3) a large, well-built grass house with neatly thatched sides, and a long verandah raised from the ground—this was erected and inhabited by South Sea men.

Treachery forty years ago.—"In the beginning of 1849 a party of Badúlegas, who had spent two months on a friendly visit to the natives of Muralug, treacherously killed an old Italega woman, married to one of their hosts. Two of her brothers from Banks Island [Moa or It] were staying with her at the time, and one was killed, but the other managed to escape. The heads were carried off to Badu as trophies. This treacherous violation of the laws of hospitality was in revenge for some petty injury which one of the Badu men received from an Ita black seven years before" (Macgillivray II, p. 7).

TUD.

Tud (Warrior Island) is a small island less than a mile long, and about a quarter of a mile wide. It is situated on a small reef, which is separated by a narrow channel from the south-west extremity of the very extensive Warrior Reefs.

The island is merely a sand-bank, probably nowhere more than twelve or fifteen feet in height, heaped up by wave and wind action. The whole of the interior of the island is covered with dilled pebbles of pumice. At the northern end is a sandpit, which appears to be increasing in size. At the south-east corner there is a large bay or lagoon, which is only filled at the highest tides. The shore on the eastern side is gently shelving; that on the south and western sides is so cut by the sea as to present low height, flanked towards the sea by a

The interior of the island is flat, and supports a vegetation of bushes and coarse grass. In one spot only, about one-third from the northern end, are there a few trees of any size. There are only a few coco-palms, and these are young.

There are one or two water-holes in the centre of the island, but these yield brackish water fit only for cooking and washing purposes. Drinking water has to be brought from Yam, a distance of over twelve miles. It is conveyed in long pieces of bamboo, as well as in the usual coco-nut water bottles.

Owing doubtless to the barrenness of their island and the necessity for fishing on the neighbouring reefs, the inhabitants of Tud were noted seamen and warriors. I believe they were greatly feared throughout the Straits on account of their ferocity and their continual raids on various islands. This warlike tendency has left its impress on the social condition of the people; for example, so far as I could learn, this is the only island in which a distinct chief was recognized. Fighting men require a leader, and apparently in Tud only was this position hereditary; in fact, I do not believe that real chiefs existed elsewhere.

The Rev. A. W. Murray (p. 453) says of these islanders: "They are said to have been a fierce people in the days of heathenism; they, like their neighbours, have suffered from their intercourse with the white man, and with strangers from other lands; — there is a considerable degree of character and stamina about them; so that I trust they will not be quite swept away, as has been the case with so many others." This refers to about the year 1871, when Mr. Murray estimated the population at about 200. I expect 50 would be nearer the mark now.

The island of Yam was really the garden of Tud, and the chief of the latter island held sway over the former. In his absence from Yam he appointed a deputy, but at once resumed his authority on his return—at least so I was informed by Maino.

Maino, the present chief of Tud, is the son of the late "King Kabagi," a person of some consideration in his day. His fighting head-dress and mouth ornament of boars' tusks of the latter are now in the British Museum, for it was on this war-stand that Maino parted with them. Maino is a very intelligent young man, and he and I became great friends, and I have a sincere regard for him. It is owing to his intelligence and readiness to give me information that I have been enabled to rescue from oblivion so many of the past customs of the countrymen.

Initiation into Manhood (informant, Maino, chief of Tud). The fathers of growing lads some day come to the *paduka* (hair on pubes) and *putu* (boy) that it is undesirable for them

women and girls, so they agree to initiate the lads into manhood.

The lads are handed over by their fathers to their uncles, who thenceforth take full charge of them until the rite is completed. They are conveyed to the *Taiokwood*, or sacred meeting-place for men, which is located in the bush.

During initiation a lad is termed *karingi*, and the instructor *mauwaigerka*. At Nagir, I was informed, a lad (*vungri*), during initiation is termed *kéngé* and afterwards *kaukwik*; the instructor is called *mauwaigerk*. A man usually initiates the sons of the man who instructed him.

At the present time (1888) the *Taiokwood* is more or less overgrown with grass and bushes. In one corner (about S.W.) are three ancient "*Piner*" trees. One of these is recumbent with age, and another is transfixed in several places with bones of the turtle, which were stuck into the tree by men long since dead. The bark of the tree has curiously grown round and imbedded these relics. I was told that a considerable fragment of a turtle's plastron had been put there by a man named Rosir, and a very tall man, Wédi by name, had thrust into the trunk, far above the others, the dart of a dugong harpoon. Round about are bushes and trees of various ages.

The central area is about forty feet long by thirty feet wide, and was formerly nearly covered by four large mats, each of which probably measured twenty feet by ten feet. These were ranged transversely along the area. About the middle line at the southerly end of the area a fireplace is still to be seen, and at the opposite extremity are the remains of two other fireplaces, separated from each other by a narrow passage some two feet wide. A fourth fireplace, now overgrown by bushes, is situated half-way up on the westerly side. On the opposite side of the large mats to the latter was a small mat, say six or eight yards. The mats, of course, have long since been removed, but I pointed out to me where they had been. Low, conical heaps of ashes still mark the spots where the old fires were. On the site where the small mat formerly lay are two large, irregular, oval, flattened stones, one marking the seat of the old chiefs of the island, the other, by fourteen inches in width, had a dire significance, as I am presently be stated.

Four mats with the four fireplaces belonged to four separate clans. The single fireplace at one end with its mat belonged to the *Sam* (cassowary) clan. The next mat and the fireplace on the right hand side were allocated to the *Umai* (crocodile) clan. The fireplace at the other end was that of the *Kodal* (crocodile) clan. The fireplace at the other end was that of the *Ba* (shark) clan. These two

at clans were "like brothers," and so had their fireplaces one together, that of the *Kodal* clan being on the right and that of the *Boidam* clan being on the left of the median line. Maino, the present chief of Tud, like his father, the noted chief *Kabagi*, belongs to the *Kodal* clan.

The elder men sat on the mats belonging to their respective clans. If a man sat by the fire or upon the mat of a clan other than his own, he was painted black, and thenceforth belonged to that clan. The young men, who had been last initiated sat round and tended to the fires. Those men who did not want to sit on the mats, or for whom there was not room, stationed themselves by the encircling bushes and trees. The youths in process of initiation were grouped at each end of the *Tuikwood*. The *Kodal* and *Boidam* lads sat beyond the fire-place of the *Sam* clan, and the youths of the *Umai* and *Sam* clans were placed beyond the twin fires at the other end. Thus the boys, during initiation, were allocated to that end of the open space farthest away from the mats of their paternal clans. The small mat belonged to the chief of the island. During certain ceremonies the large drums were grouped at the common centre of the mats, and a large mask (*krar*) was placed in the middle of the left hand side of each mat. (In this description I have assumed the spectator as standing at the *Sam* end of the *Tuikwood*, and looking along its length in a northerly direction.) On each side of the *krar* were situated the leafy masks (*mario-twik*) which were used in funeral ceremonies. The trees and bushes surrounding the enclosure were laden with all kinds of food during the period of initiation; on its conclusion, the remaining food was taken back to the houses.

The lads to be initiated were painted all over with charcoal (*kobi kobi*, the charred shell of the coco-nut). Every day the lads were washed and fresh charcoal rubbed on. The avowed object of painting the body with charcoal was to render the skin paler in colour. They say that the skin of the body assumed the paler and almost European tint which characterises the palms of the hands and the soles of the feet of the natives. If at the end of the period a boy came out "white," the father was delighted. If the colour did not satisfy him he considered that the uncle, or whoever the *Mauwaigerko* was, had not done well by him.

The lads were covered with a kind of mat-tent or covering (*sobera*), which completely enveloped them when sitting down. When walking only the legs were visible. I was told that the mats used at Tud came from Danda. They were made of strips of banana leaf sewn together by means of a vegetable fibre. Each covering was like a high-pitched roof with vertical ends.

For a month the youths were initiated.

patetic prisons, spending all the day in silent darkness, squatting down at their appropriate ends of the *Taiokwod*. After night-fall they were marched off to a house at the outskirts of the village, and before sunrise—when “the wild fowl called out”—they had to retrace their steps to the bush. Not only may they not be seen by any girl or woman, but even their own fathers are not allowed to visit them. Infringement of these rules is punished with death. Once, four youths, tired of the irksomeness of the discipline, broke away from the *Taiokwod*, and seeing their mothers with some yams and sweet-potatoes, shouted out to them, and, holding up the left arm to attract attention, asked for some food. They were immediately killed with the stone previously mentioned.

I made special enquiries as to the diet of the lads during initiation, and was assured that any kind of food might be eaten, except fat, as this would cause an eruption of pimples (*moid*).

Kūdūma, of Nagir, informed me that at his island the lads to be initiated were covered with a mat (*sobera*), as in Tud. Charcoal was washed off and put on afresh every day. During initiation the lads (*kernege*) were not allowed to eat certain fish, such as *paza* (said to be a flat fish, with poison stings, not the sting ray), and *takam*, a small kind of “rock fish,” nor the “red one made craw-fish” (i.e., the thoracic viscera of the spiny lobster), but they might eat its flesh. Fat might be eaten, but not any *era* (*serri*). They were not allowed to see any woman or father. They might not play or talk, but had to keep quiet the time, sitting still and looking down. The *maurcagerk* chided them the whole time to see that these rules were obeyed. Lads slept at the *kwod* all the time. The period of seclusion did to have lasted for two months.

was informed that during the period of seclusion the *nigerk* instructed the youths in the lore and customs of the ; nor was moral instruction forgotten. The following is, as possible, a literal transcript of the moral axioms as given him: “You no steal. You no take anything without ave; if you see a fish-spear and take it without leave, suppose you break it and have not one of your own—how you pay him? Suppose you see a dugong harpoon in a canoe and take it, man be no savvy, you lose it or break it, how you pay him, no get dugong harpoon? You no play with boy and girl now; a man now and no boy. You no play with small play-see of spear; that all finish now. You no like girl first, if you no girl first and call you a woman. [That is, the lad must not propose marriage to a girl, but wait for her to ask first.] You no marry your cousin, be all same as sister. If two boys are not marry each other's sisters, or by-and-bye

an opportunity the sister says to her brother, "Brother, I have good news for you. A woman likes you." He asks in, and after some conversation, if he is willing to go on a sabbath, he tells his sister to ask the girl to keep an appointment with him in some spot in the bush.

On the sabbath the enamoured damsel informs her parents that she is going into the bush to get some wood, or food, or some such excuse. In due course the man meets the girl, and they sit down and yarn. The man does not take any liberties with the girl or even fondle her, but they sit and talk sweetly. (The following conversation is given in the actual words which Maine used.)

Opening the conversation the man says, "You like me, don't you?"

"Yes," she replies, "I like you proper with my heart inside. My heart sees you—you my man."

Wishing to really give himself away, he asks, "How you

like your fine leg—you got fine body—your skin good——I like it altogether!" replies the girl.

Satisfied with the matter, having proceeded satisfactorily the girl, anxious to be married, asks when they are to be married. The man says, "To-morrow if you like."

They both go home and tell their respective relatives. Then the girl's people fight the man's folk, "For girl more big (i.e., of more consequence) than boy."

If the girl has a brother he takes the man's sister, and then all is settled. The fighting does not appear to be a very serious business.

"Swapping" sisters was the usual method of getting a wife. If a man had no sister he might remain unmarried, unless he was rich enough to pay for a wife with a shell armlet (waiver) or a canoe, or something of equal value. If a youth was "up," an uncle might take compassion on him and give one of his own daughters in exchange for a wife for his nephew. The exchange of girls—a sister for a sister or female cousin for another man's sister, was an economical method of getting a wife as one was a set off against the other. The usual custom occurred, but the presents were dispensed with, or at least the purchase money was saved, and probably there was no fighting.

I believe also that the usual presents from the marriage were rather from the husband, to the wife's parents, and the children, would be dispensed with.

Customs relating to Fight
In the fighting in the lads were

enough to join the
e leave

palm during a dance. "Medicine" would be given to cause them not to care for anybody. Men would also drink the sweat of renowned warriors, and eat the scrapings from their finger nails which had become coated and sodden with human blood. This was mixed with their food in order "to make strong and like stone; no afraid."

Before going to fight the men would stand round the *kupai* of Sigai, and dig their bows and arrows into the ground there, so that virtue might pass into them.

According to MacFarlane the *kupai* or *kupor* (or umbilical cord) of a boy was preserved at Saibai until he had grown up into a young man; it was then buried as a sign that this was his native place, and from which he must not depart. Sigai, who was a noted warrior, had buried his *kupor* a short distance to one side of the *Taiokwood*.¹ The spot, still strewn with giant clams, trumpet conchs, and other shells, was pointed out to me by Maino. They would also take a coco-nut and break it, repeating twice, "Sērāsērā birgesera." If the coco-nut broke evenly into two halves, they would have a successful foray. If it should not break straight, they would only kill a few men. If a piece of the coco-nut shell broke off, an immediate relative of the man who broke it would die soon. All the men ate a small piece of the kernel of the broken coco-nut, and they took up the two halves of the shell and put "medicine" inside. ("Seraserā" was I was informed, a white sea-bird or shore-bird, which hops when it catches fish. I wonder if this is the same as the hero of Badu.)

The Tud Warriors usually so arranged their forays that they fell upon the enemy immediately at or before sunrise, striking them while still heavy with sleep, and before they had time to relieve themselves. Being taken at a disadvantage, the attacked would be more easily vanquished. The tactics usually employed were for a few men to enter a doomed house enclosure, while the majority remained outside, to cut off the natives. During a foray they would not take women prisoners, violate them. If a man was caught doing the latter he would be told, "We come out to fight, not to do that," and he would be killed.

Sigai was probably the same as the hero Siga I heard of at Mēr, who with his three brothers, Mālū, Sēā, and Kūlkā, left their native island of Muralug, in his own canoe. Siga was blown away to Yam. Kūlkā remained at Aurid, and was killed at Masig by Malu. The latter proceeded to Mēr, and was their culture hero. If this be the case, it would appear that Siga (or Singai) carried his *Ampon* with him, and his burial of it in Tud was a sign that he had, so to speak, planted himself there. Yam, as I have previously stated, is the garden of the Tud Warriors, and the anonymous hero of the Kulkalaig, or that of the small islands in the central

A warrior who had killed a man would tear out his tongue and eat it on the spot. The penis was usually also cut off. Before a fight they would blow in the direction they were going through a dried penis.

Whilst fighting they would call on the names of past warriors of renown, such as Sigai (of Tud), Kwoiam (of Mabuiag), and Yádzebub (of Yam). The name for a warrior was *Kaigerkúal gaka*.

Funeral Customs.—When a man dies, the people are sorry. If they want to take the head, they bury the body for four days: "Second day, body swell up, stuff run down; third day, belly break; fourth day all wet." A noise is made at the grave (see account of Magau's burial). The earth is removed; one man takes the head and another the jaw, they turn over the ground with their hands, "never mind the stink." If any teeth have tumbled out, they look about for them. The head is taken to the sea; if, when first put into the water, it sinks at once, it means that the man met his death through the charms of a local sorcery-man. If the head floats, it proves that the sorcery-man lived at a distance, and the face points to the direction where a man resides. Then the head sinks with a bubbling noise, is washed clean and put in the ground for two or three days, in it is again washed, painted, and adorned. The head is given slaves; a feast is held, when food is given to the brother and there is a big dance.

Learned from Maino that only a "brother-in-law" could touch a man's skull; if there was no brother-in-law the body could not be touched. If a woman dies the brother takes the skull or if a married woman, the husband's brothers, not her brother, "because they cry, they sorry," nor her husband, because "I make *kakai* (i.e., prepare food), he cry."

If old people die they bury them, and put a fence round and do not prepare their skulls, but if "young fellow die, sorry."

For mourning the women covered their bodies all over, *but* (i.e., white coral mud): a long fringe of frayed sago leaves was tied round the neck so that it fell down in front behind. This was the *soyer*. Armlets, bracelets, leg anklets, made of the same material and collectively *bisual*, were worn. I was informed that no other garb worn by the women, who, during the day-time, stave their houses. Mourning for a near relative lasted "Sister can't forget her brother, she cry one year."

YAM.

Yam (Turtle-backed Island) is an irregularly shaped island about a mile in length and averaging half-a-mile or more in width, and lies about twelve miles south-west by west of Tud. There is a low dome-shaped hill at one end, and at the eastern side is a swampy lagoon that fills at high tides.

Jukes gives the following account of his visit (I, p. 155): "On Turtle-backed Island we found a few small groves of coconut trees near a group of huts with a little thicket of bamboo, and near the centre of the island, following a little path through a matted wood, rendered impervious by creepers, we came one day on the first symptoms of cultivation of the ground we had ever seen among the aborigines of this part of the world [Cape York and Muralug only had so far been visited by Jukes]. This was a little circular plot of ground, not more than four or five yards in diameter; but it had evidently been dug, though in a rude manner, and in it were set several young plantain trees, one or two other plants, and two trailing plants somewhat like French beans in appearance, which we afterwards found were a kind of yam. The huts on this island had the appearance of a first attempt at a house, having side walls about two feet high, and a gable-shaped roof rising four feet from the ground. They were about ten feet long and six feet wide, made principally of bamboo, and thatched with grass and leaves. They stood in a picturesque little spot backed by some huge blocks of which some large shells were arranged. About fifty on them, under some widely-spreading, thick-leaved gnarled trunks and twisted boughs, were some great sienite resting fantastically one upon the other.

In all the wood that spread over the island there did not seem to be a single gum-tree. The trees were widely branched, and umbrageous, and matted with underwood and creepers. The whole aspect of the vegetation was totally different from that of Australia."

Mr. Crispin informed me that at the time of my visit to this island, there was on the windward side of the island an old man on high piles. The only indigenous natives on the island were an old man and two young boys; all the rest had left or

NAGIR.

Ernest) is situated twenty-six miles from the coast. In shape, highly speaking, the form of an oval, the points in the north and south

a plank raised on stones a foot or so from the ground. skulls were mostly old and weather-worn, and some of them had pandanus seeds stuck in the orbits by way of eyes. In front was a large smooth stone painted red and black, and partially embedded in the earth, and beside it were some painted human leg and arm bones, shells, and other ornaments. Behind, some thirty or forty skulls of turtle were arranged on the ground in several rows, forming a triangle" (L.C., pp. 36, 37).

Etiquette to Parents-in-law.—Mrs. F. L. Jardine gave me the following information. Husband and wife never speak to their respective parents-in-law by name, but always address them as "ira" (i.e., "mother" or "father-in-law"); otherwise, intercourse is not restricted, except that the wife does not give food to the father-in-law but through the mother-in-law and gives food designed for his mother-in-law to law. Kuduma, whose English name is "Look," "No come close to father- and mother-in-law, ashamed."

Parents used to kill their infants when they were large enough—more especially the first-born—as it was "too hard work" to provide for them.

Custom was to bury the newly-born baby in the sand. Sometimes parents would exchange their children. If a married couple had no children they might be accommodated by another fortunate pair, and presents would be given in exchange. In such cases, the original parents had no claim whatever on the child afterwards. These transactions would usually take place when the child was about eight months' old (Mrs. Jardine).

Adultery.—If a married woman likes another man, they go into the bush, and she gives him a present. If they are found out, the woman is not punished, but they "row" (probably a mild kind of fight), the man, "when finish shake hands" — "Woman he steal man" (Kuduma).

Charm for Bravery.—In order to infuse courage into a warrior, *Kérketegerkai*, would take the eye and tongue of a man (probably of a slain enemy), and after mincing it mixing with his urine, would administer the composition following manner. He would tell the boy to shut his eyes, not look, adding, "I give you proper heart." (The introduced word, being the name of the heart, for the warrior then stood up behind the latter's head between his legs. After this dose "heart" along to

Funeral Customs.—The dead body supported by poles on either side, and the family

rosts in the former case, or placed upon the grave if buried. There was always a fire (Mrs. Jardine).

The corpse was placed on a framework (*lak*), and either surrounded with a mat, or a mat might be placed beneath the body and coco-palm leaves above it. When decomposition had set in, the skull was removed and put into "hard ground, so that smell he go." All the relatives looked for food. The skull was made "flash," and put into a basket. The body might be buried immediately after death, if the skull was not required, as for instance, in the case of old people; but if young people died, the skull would be preserved as a memento. In addition to preserving the skull, the Muralug men take some or all of the bones; but this is not the Nagir fashion (Kuduma).

Funeral Ceremonies for Magau.—Magau ("Billy") of Nagir was a young unmarried man who died about the end of 1887. His death was firmly believed to have been caused by the telepathic sorcery of a *maidelaig*, or sorcery man, residing at Cape York.

When Magau died, Kuduma, his uncle, and Aina (Harry Nagir), his foster brother, yarned and said, "Very good, we make him same as man long time fashion, we will take him head, but leave him body in ground." So they buried him. "First day, he stop ground; next day, stuff him run down; next day, belly he go."

On the following day all the *mariget*, or people belonging to the dead man, such as his father and brother-in-law, went quietly in a crouching manner to the grave. When they got there, they all suddenly and simultaneously stamped on the ground, clapped their hands, and said, "Ah!" Then the body or spirit, departed from Magau, and his skull would come off easily. The earth was removed from the body, and one man took hold of the cranium and another of the jaw. The brother-in-law kept the skull; he washed it in the sea, and when it was clean and "no stink," he painted a blue mark over the eyes, inserted pearl shell eyes, moulded a nose out of wood and bees-wax, which he painted red, supplied the deficiency of teeth with wooden pieces of wood, lashed the jaw on to the cranium, attached seed and calico ear pendants. So it was made "flash."

After about three months a death-dance was held ("made him flash") during which a central "*ipikamerka*" danced with "*ipikamerka*" on each side (see account of funeral ceremony had been twice performed, heard. He had loose pieces which clattered as he jumped

made, but in addition to the

ama, sweet potatoes, coco-nuts, bananas, and so forth of the old-fashioned feasts, this one was re-enforced with four bags of rice, one case of gin and one of schnapps. The adorned skull Magau was placed on a mat in the middle. The father and mother prepared food for the other *marigt*, and put it in front of the skull; the *marigt* also made food ready for the father and brother of the deceased, and placed it likewise before the skull. Then "all got damned drunk all night; if woman sleep, wake him up—no make row."

Before the feasting commenced, the skull was handed over to the father, and at night time it was covered over with a mat, and the family slept around it in memory of old times. After three nights the father kept the skull in its basket close by his pillow.

Magau's skull was sold to me by another foster-brother, Aiwōli by name, on the 13th of August, 1888, for one toma and three fathoms of calico-print.

WARABER.

"Sue, although the largest of the 'Three Sisters,' is no larger than the third of a mile in length. (it) is of the coral sea formation, low and thickly wooded. Some cocoa-nut trees grow at the west end of the island, where there is a native village. It consisted of several long huts, thatched with grass, which apparently are not much used in the day time, as we saw only one entering or coming out of them. Many of the people, both men and women, ran down to the beach, waving green branches to induce us to land; others were sitting down under temporary sheds made by stretching large mats—the sails of their canoes—over a framework of sticks. The inside of one large enclosure was concealed by a fence six feet high, and an adjacent shed under which some cooking was going on, was completely covered with some recent shells of turtle, apparently about thirty number. Three very large canoes were hauled up on the beach, protected from the sun by matting, and two smaller ones were kept afloat" (Macgillivray, II, p. 41).

AURID.

This island is merely a vegetated sand-bank. Brough says: "There were no natives on it at the time we were there. During our search we saw some native dogs. After we had been on the island about half an hour we discovered a small hut lined on both sides with shells of turtle. In the middle of the hut, there was a hut rather in a cove. When we entered the hut, we found, to our surprise, a large number of

fastened to a large tortoise-shell figure in the manner represented in the Plate. [This is a large face with a triangular erection projecting beyond the forehead; at the junction of these two is a semicircular piece which projects at right angles to them; it is carved and ornamented with feathers, the whole being surrounded with skulls.] The boat said that the natives held a corrobory over the figure on feast days. Some of the skulls have marks of violence on them, and they are lashed to the figure with a piece of European rope.

The body of the figure, it seems, was composed of tortoise-shell and smeared over with a red colour, and measured between four to five feet by about two and a half. A semicircular projection stands out from the forehead, made also of tortoise-shell fancifully cut, and when taken from the island was ornamented with feathers. In the centre of the figure, from the projection upwards, is a small bundle of broken arrows bound together. The eyes are detached and formed with a silvery shell, something like what is called the mutton fish, and the face is surrounded with shells arranged with method" (Wemyss, p. 31). The bundle of arrows here referred to may be a tally of the number of people murdered.

MASIG.

The only account we have of Masig or Mäsid (Yorke Island) is that by Jukes, in March, 1845 (I, pp. 167-169): "We found in the centre of the island two water-holes like those of Damood, which Masseed had indeed a precise resemblance, except that was rather larger. . . . We found several women and children waiting for us at a group of huts, exactly resembling those of Damood. . . . The women were no great beauties, being middle-aged, with closely cropped hair, and breasts flat, skinny, and pendulous. They were, however, decently clothed, with a sort of petticoat of leaves, reaching from the waist to the knee. They carried their younger children, like the Malays, astride across the hip, and seemed still to be suckling several, who appeared three or four years' old. . . . They had frizzled hair closely cropped all over, except a ridge about an inch high, running from one ear to the other, over the top of the head.

The canoe came to us, in which were three men and . . . They approached us, unarmed, with the utmost . . . one man holding a cocoa-nut in one hand and a . . . They all shouted 'Pond, pond, pond, peace with Masseed!' They were . . . of a different type from the

Australians, with muscular limbs and frizzled hair. They had the oval epaulet-like mark on their shoulders, but no other scars. Their hair was dressed into long, narrow, pipe-like curls, smeared with red ochre and grease, and they wore a band round the forehead. One old man, who informed us his name was Garia, had a black wig dressed like their hair, but his beard and whiskers were nearly all grey. They seemed fond of smoking. Their canoes resembled those we had seen in Endeavour Strait, but larger and more ornamented.

Round house.—"We then went for a walk along the south side of the island, old Garia accompanying us. About half-a-mile from the village we came to a single hut, of a different shape from any we had yet seen. It was just like a great beehive, ten or twelve feet in diameter at the base, and the same in height, having a thick thatch of grass. A pole protruded from the summit, on which was a large shell (*fusus*), and a small hole or door at one end, partly covered by a board of wood. We thought at first it might be the receptacle of the dead, but at Darnley and Murray Islands almost all the houses are of this form, so that this must either have been erected in imitation of them, or by some people of those places when on a visit to Masseed."

Mask.—A large mask consisting "of two rudely carved figures of fish, about two feet long, connected together by cross pieces, about one foot long, over which frame was a large figure of a bird (a hornbill) with a immense toothed bill, the eyes and some other parts cut out of mother-of-pearl, neatly inlaid. It was altogether two and a half feet high, and by no means badly designed or executed."

Brockett says (p. 32), "As soon as we arrived within a short distance of the island, the natives came down to the beach with branches and leaves in their hands. They offered us cocoa-nuts, shells, &c., and refused to take anything in return. They appeared to be very much alarmed."

DAMUT.

Damut or Damud (Dahrymple Island) is an island about a mile in length and one-fifth of a mile in breadth. It is situated about twenty miles north of the main island.

Flat, sandy, wooded
center of a mile
is north-east of

The following is the only account of it.
"March 21 (1845).—We anchored near the island, which the natives call Damood. On seeing us they shouted 'poud! poud!' and waving green branches, they became good friends. Ten men went to the beach, and three elderly women crawling off into the

younger women and children had previously hidden themselves. The men received us most cordially, though with much clamour and gesticulation, and the others having landed from the canoe, led us between the huts to a clear open space at the back of them, shaded by cocoa-nuts and other trees, and which seemed the place of public meeting of the village.

Houses.—"The huts were by far the best and neatest erections of the kind we had yet seen. Each one occupied a quadrangular space, six to eight feet wide, and from ten to fifteen feet long. They had gable-shaped roofs, eight feet high in the centre, and sloping on each side nearly to the ground. The frame of the house was made of bamboo, and thick covered or thatched with grass and palm-leaves; the front and back walls were also made of small bamboo sticks, upright and fastened close together, the front wall having a small triangular opening for a door, over which hung loose strips of palm leaf. The door looked into a little courtyard of about ten feet square, in front of the house, strongly fenced with stout posts and stakes, interlaced with palm leaves and young bamboos, and accessible only by a very narrow opening between two of the strongest posts. In this courtyard was the cooking fire. The different huts and fences were rather irregularly disposed, but placed closely together, so as to leave only narrow winding passages between them. They occupied a space fifty or sixty yards long, by ten or fifteen broad. Behind them was the open place of meeting, on the other side of which, against an old tree, was a semi-circular pile or wall of dugongs' skulls about three feet high, many of which were quite fresh, but others rotting with age; in the middle of this was a conical heap of turtles' skulls in a similar state. There must together have been some hundreds of skulls of each kind of animal.

"When they had conducted us into this open space, several of them seated themselves on small well-made mats, like those used by the Malay nations; and two or three went and brought a large roll of matting, at least twelve feet by six, which they spread for us to sit down on. These really well-made fabrics greatly surprised us after being accustomed to the non-manufacturing Australian. They then brought us young cocoa-nuts, tortoise shell, and ornaments, and a great barter commenced. They gave us cocoa-nut water, without waiting to receive anything for it, but for the other things they would only accept tobacco. For implements, paying no regard to our beads and chiefs. They brought us two small bananas or see the trees on which they grew. wood and myself to stroll about the by the water with the boat's crew.

Huts on piles.—At the south end of the huts we came to a building much superior to, and different from any of the rest. It was like a Malay house, unfinished, or one of their own smaller huts raised on posts to a height of six or seven feet. The point of the gable was at least fifteen feet from the ground, the roof being supported at each end by two stout posts, about a yard apart, having their tops ornamented by carved grotesque faces, painted red, white and black, with much carving and painting below. The lower part, or ground floor of this building, was open all round, except at one end, where a broad, rudely-constructed staircase led to a platform, from which went the entrance to the upper storey; this was floored with stout sticks, and at this end covered with mats; this part was also partitioned off from the other by a bamboo screen. Under the roof hung old cocoa-nuts, green boughs, and other similar things, but nothing to give a decided clue to the object of the building. Whether this was their temple, their place for depositing the dead, or a chief's house, we could not make out. We, however, saw no appearance of any chief, or of one man exercising authority among them, neither could we discover any traces of religious belief or observance.

Water-holes and Gardens.—"We now struck off for a walk across the island, one of the natives coming with us as a guide. Many narrow paths crossed in all directions, among shrubs and bushes, some of which resembled laurels and myrtles, in their leaves and mode of growth. Groves of lofty forest trees occurred here and there, with matted creepers and thick jungle. Several trailing briars, with thorns like the European bramble, were observed; and, in short, the whole vegetation had a totally different aspect from that of Australia, and a much greater resemblance to that of Europe or Asia. Our native conducted us to some water-holes, which he seemed to think were the object of our search. These water-holes were large irregular excavations in the sand, fully ten feet deep, and near the middle of the island. At the bottom of each excavation was a hole containing a few inches of fresh water, carefully covered from the sun by sticks and lumps of wood. We passed several spots which seemed to have been partially cleared and gone some cultivation, in which were long kidney plants climbing up sticks. We afterwards discovered 'ketai' plants, a kind of yam" (James I. pp. 16).

2. "This house resembled the smaller houses and it may have been erected merely in its own right."

1086 the islanders
markai mud, or apra-

It was here that Jukes first saw the bamboo pipe; his description has already been given.

MOA OR IT.

The Island and its Inhabitants.—The island known on the charts as Banks Island is situated twenty miles north of Thursday Island and north of the Torres Reefs; it is comparatively large and fine, the eastern side is very hilly, the highest eminence being 1,310 feet in height. This hill and the district immediately around it is known by the natives as Moa, the western low-lying portion of the island, including the village on the north shore, being called It. As the former name is in more general use I shall always refer to the island as Moa, and not attempt to distinguish between the two districts.

I should imagine that parts of the island are fairly fertile, and bamboos of large size grow in parts of the island.

There is a good deal of communication between Muralug and Moa. The dialect is the same in both islands, as the people trade and intermarry with each other. I found a Muralug man living at Moa "as his mother came from there." We may therefore regard Moa as being the most northerly of that group of islands which the Kauralaig inhabit.

The marriage customs were the same as in Muralug.

Funeral Customs.—Dead bodies were placed on a light frame supported on four posts (*sara*); the head was removed also the scapulæ (*kolab*) and fibulæ (*ngaraupila*). These said to have been put into a basket (*yēna*). The rest of the body was buried.

For mourning (*bud*) I was told the men painted themselves red for five days for a friend, then painted themselves black and had a dance and feast.

Magic.—A "big man" would raise the wind by painting himself black all over and whirling a leaf (?). (This must be a kind of bull-roarer.) He could also kill the wind, "*usimaipa*

and the fine model of a dugong, now in which was formerly used as a charm to destruction.

MURALUG.

Prince of Wales' Island), the largest situated fifteen miles due west from Muralug, quadrangular in outline,

at diagonal, i.e., from Heath Point to Cape Cornwall, approximately from north to south and is nearly eleven nautical miles in length. The island is extremely hilly, the hills rising up more or less directly from the shore except in the north-east corner, where there is a flat mangrove swamp over two miles long and half a mile or so broad. The interior of the island is entirely hilly; the highest of the hills is only 761 feet in height, and all of them are covered with trees. There is one north and south valley, extending from the mangrove swamp to Port Lihou, which forms a natural highway across the island.

Formerly the natives lived almost exclusively on the south side of the island at Port Lihou, but two or three years ago the authorities at Thursday Island induced a permanent settlement to be made at Aiginisau, a bay at the northern extremity of the mangrove swamp. The inhabitants travel about a great deal during certain seasons in search of wild fruit; for instance, in the middle of September, 1888, there were only two families resident at Aiginisau, whereas there were twenty-seven meeting at Port Lihou.

The only houses I saw which had the appearance of being real were some which looked like a high pitched roof resting on the ground, one end being more or less open. There were also two small "sketchy" huts on piles, which I believe were not intended for serious residences; probably they were merely sun-shelters. Brockett says of Wednesday Island (one of this group), "Their houses were not so neatly made as the huts in other parts of the Straits, and they were built in a different shape, somewhat resembling that of a tent" (p. 37).

Courtship and Marriage.—Advances towards matrimony may be made by either sex. If a man likes a girl and she him, they do not run away into the bush together, "That not good," the man goes to the girl's father and the latter says, "All right you may have her." So he takes her. Next day the friends of each side meet opposite one another and arrange what price be paid. A feast and dance then take place.

"If a girl likes a man and gets no chance," she goes to a friend of string or grass large enough to go on, and gives him a mutual friend to transmit to the favored man, who seizes the first opportunity and privately informs the man, who asks whom it is from and what to be made. If he is willing to proceed in the same way, he informs the girl's father that a marriage is being made. The father communicates with the girl's father, and the girl is then taken to the new home.

that her father wants to see him—"To see what sort of man he is." The father then says, "You like my daughter, she like you, you may have her." The details are then arranged.

The price of a girl varies, and payment is made annually for several years, if the bridegroom cannot pay up at first. Some time after the purchase is concluded, perhaps two or three years afterwards, the father has to return presents to the value of the original amount, or the return presents may be made at the same time, and are divided by the bridegroom among his people. Failure to do this was a not uncommon cause for quarrels, and a man has even been known to kill his father-in-law.

The purchase money for a bride is here evidently modified into an exchange of presents. The man has often to borrow to give to his father-in law; the return presents go to repay the bridegroom's creditors. The return of presents on the father's part appears to be the result of a feeling that a wife costs too much, and that the husband should not be impoverished. The sanction to the marriage has to be given by the father of the bride, but the bride's brother arranges what presents are to be made and other details. If an exchange of sisters is made between two men no presents are given, as it is a reciprocal transaction.

The price of wives varies according to circumstances, say, for example, two or three dibidibi—up to about ten, or a dugong spear, or something of equal exchange value.

Macgillivray (II, pp. 8-11) says, "Occasionally there are instances of strong mutual attachment and courtship, when, if the damsel is not betrothed, a small present made to the father is sufficient to procure his consent; at the Prince of Wales' Islands a knife or glass bottle are considered as a sufficient price for the hand of a 'lady fair,' and are the articles mostly used for that purpose."

"The life of a married woman among the Kowrarega [Prince of Wales' group] and Gúdang [Cape York] blacks, is a hard one. She has to procure nearly all the food for herself and husband, except during the turtling season, and on other occasions when the men are astir. If she fails to return with a sufficiency of food, she is probably severely beaten—indeed the most savage acts of cruelty are often inflicted upon the women for the most trivial offence. Considering the degraded position assigned by the Australian savages to their women, it is not surprising that the Prince of Wales' Islanders should, by imitating their neighbours in this respect, afford a strong contrast to the inhabitants of Darnley and other islands of the part of Torres Strait, who always appeared to me to treat their wives with much consideration and kindness. Several

instances of this kind of barbarity came under my own notice. Piaquai, when spoken to about his wife, whom he had killed a fortnight before in a fit of passion, seemed much amused at the idea of having got rid of her unborn child at the same time. One morning at Cape York, Païda [of the Gúdang tribe] did not keep his appointment with me as usual; on making enquiry, I found that he had been squabbling with one of his wives a few minutes before, about some trifle, and had speared her through the hip and groin. On expressing my disapproval of what he had done, adding that white men never acted in that manner, he turned it off by jocularly observing that although I had only one wife, he had two, and could easily spare one of them. As a further proof of the low condition of the women, I may state that it is upon them that the only restrictions in eating particular sorts of food are imposed."

Etiquette to Parents-in-law.—"Among other pieces of etiquette to be practised after marriage among both the Kowrangas and the Gúdangs, a man must carefully avoid speaking to or even mentioning the name of his mother-in-law, and his wife acts similarly with regard to her father-in-law. Thus the mother of a person called Náki—which means water—is obliged to call water by another name" (p. 11).

Parturition.—"According to Gi'om puberty in girls takes place from the tenth to the twelfth year, but few become mothers at a very early age. When parturition is about to take place, the woman retires to a little distance in the bush, and is attended by an experienced matron. Delivery is usually very easy, and the mother is almost always able on the following day to attend to her usual occupations. The infant is laid upon a small soft mat which the mother has taken care to prepare beforehand, and which is used for no other purpose" (p. 9).

Infanticide.—"The population of Muralug is kept always about the same numerical standard by the small number of births, and the occasional practice of infanticide. Few women rear more than three children, and besides, most of those born before marriage are doomed to be killed immediately after birth, unless the father—which is seldom the case—is desirous of saving the child—if not, he gives the order *wardma* (throw it into the hole), and it is buried alive accordingly. Even of other infants some, especially females, are made away with in a similar manner when the mother is unable to support it" (p. 11).

Naming infants.—"An infant is named immediately after birth; and, on Muralug, these names for the last few have been chosen by a very old man named Guig"

these names have a meaning attached to them: thus, two people are named respectively Wapada and Passei, signifying particular trees, one woman is called Kúki, or the rainy season, and her son Raa, or the driving cloud. Most people have several names; for instance, old Guigwi was also called Salgai, or the firesticks, and Mrs. Thomson was addressed as Kēsāgu, or Taōmai, by her (adopted) relatives, but as Gi(a)om by all others" (pp. 11, 12).

Childhood.—"Children are usually suckled for about two years, but are soon able, in a great measure, to procure their own food, especially shell fish, and when strong enough to use the stick employed in digging up roots, they are supposed to be able to shift for themselves" (p. 12).

Nose piercing and Scarification.—"When the child is about a fortnight old, the perforation in the septum of the nose is made by drilling it with a sharp pointed piece of tortoise-shell, but the raised artificial scars, regarded as personal ornaments by the Australians and Torres Strait Islanders, are not made until long afterwards. According to Gi'om, who states that among the Kowraregas this scarification is purely voluntary; the patient is laid upon the ground and held there, while the incisions are made with a piece of glass by some old man famous for his skill in performing the operation. The chewed leaf of a certain plant is introduced into the wound to prevent the edges from uniting, and a daub of wet clay is then placed over all, and kept there until the necessary effect has been produced. The principal scarifications among the women at Cape York and Muralug are in the form of long lines across the hips. Among the men, however, there is considerable variety" (pp. 12, 13).

Dress.—"Not only at Cape York but throughout Torres Strait the males use no clothing or covering of any kind. At Cape York and the Prince of Wales' Islands grown up females usually wear a covering in front, consisting of a tuft of long grass or flag (*Phylidrum lamuginosum*), or split pandanus leaves, either hanging loosely or passed between the legs and tied to another behind; over this a short petticoat of fine shreds of pandanus leaf, the ends worked into a waistband, is sometimes put on, especially by the young girls, and when about to engage in dancing. This petticoat, varying only in the materials from which it is made, is in general use among the females of all the Torres Straits tribes, except the Kowrarega, and much labour is often expended upon its construction."

Textiles.—"The large mats used as sails, also for sleeping under in wet weather, are made by the women from the leaves of the pandanus, the common basket from the leaves of *Xerotes Baski* (?), and the water-basket from

party returned, and when it became known that the old man had been missing for several days, they were induced by his two sons to search for him, and found the body horribly mutilated, with many spears stuck into it to show who had been the murderers. This explained the fire, so another was lit in reply to the challenge, and at night a party of Kowraregas in six canoes, containing all the men and lads of the tribe, crossed over to the main [Endeavour Strait is here about nine miles wide]. They came upon a small camp of Yigeiles who had not been at all concerned in the murder, and enticed one of them to come out of the thicket, where he had concealed himself, by the offer of a fillet of a cassowary feathers for information regarding the real murderers. As soon as the man stepped out, he was shot down with an arrow, his head cut off, and pursuit made after the rest. Towards morning their second camping place was discovered and surrounded, when three men, one woman, and a girl were butchered. The heads of the victims were cut off with the *kapi*, or bamboo knife, and secured by the *sring*, or cane loop, both of which are carried slung on the back by the Torres Strait Islanders and the New Guinea men of the adjacent shores, when on a marauding excursion; these Papuans preserve the skulls of their enemies as trophies, while the Australian tribes merely mutilate the bodies of the slain, and leave them where they fall. The Kowraregas returned to their island with much exultation, announcing their approach by great shouting and blowing on conchs. The heads were placed on an oven and partially cooked, when the eyes were scooped out and eaten with portions of flesh cut from the cheek; only those, however, who had been present at the murder were allowed to partake of this; the morsel was supposed to make them more brave. A dance was then commenced, during which the heads were kicked along the ground, and the savage excitement of the dancers almost amounted to frenzy. The skulls were ultimately hung up on two cross sticks near the camp, and allowed to remain there undisturbed" (Macgillivray II, pp. 4-7).

In Part I, I have given an account of a war-dance I saw performed in Muralug.

Various Superstitions.—"Among many superstitions held by the Prince of Wales' Islanders, they are much afraid of shooting stars, believing them to be ghosts which in breaking up produce young ones of their own kind. After sneezing, they make violent gestures with the hands and arms; if a boat crosses they imagine that someone is speaking of them or warning them well in the direction in which the arm is pointing. (Macgillivray II, p. 30).

"A singular mode of treating various

attaching one end of a string to the patient, while the other is held in the mouth of a second person, who scarifies his own gums at the same time until they bleed, which is supposed to indicate that the 'bad blood' has passed from the sick to the sound person" (Macgillivray II, p. 31).

"In like manner [to the custom of changing the name of an object, should a parent-in-law have the same name], as the names of the dead are never mentioned without great reluctance so, after the death of a man named Us, or quartz, that stone had its name changed into *naitam ure*, or the thing which is a name-sake, although the original will gradually return to common use" (*Id.*, II, p. 11).

Magic.—A sorcery-man, or "big man who savvy," who wanted to raise a wind would cut out a piece of wood shaped like a *wanes*, but made very thin, "like a leaf;" this was attached to a long piece of string and whirled round. The vibrations together with the revolutions were so rapid that the instrument was invisible. If more wind was required the man climbed to the top of a tree and performed there.

The same man could also make the sea advance upon the land by taking a block of coral from the edge of the reef and putting it under a tree. The water would then in due time come up to that tree: he could also cause it to retire to its normal level.

Funeral Customs.—Jukes and Macgillivray have given us the following accounts of a Muralug grave:—

"Near the beach, in the centre of the bight [of Port Lihou], we found a singular native tomb, apparently quite recent. Round a central mound of sand there had been a broad ditch or hollow scooped out, and swept quite clean for several yards in width. The mound was of a quadrangular form, eight feet long, four feet wide, and three feet high. A stout post stood upright at each corner, and the sides were ornamented by rows of the ribs of the dugong placed regularly along them. Between the two posts near the sea a long stick had been inserted, ornamented with feathers and streamers of grass, and fastened to the post by other cross sticks similarly ornamented. On each post was either a large shell or the skull of a dugong, and on the grave were several other dugongs' skulls and shells of the *Nautilus pompilius*. All these, as well as the posts, were smeared with red ochre. We were careful not to disturb or leave any other trace of our presence than our foot-prints in the sand around, which it would have given us too much trouble to erase" (Jukes p. 149).

When the head of a family dies at Muralug, the body is laid upon a framework of sticks raised a foot from the ground, and left to rot. A small hut is raised close by, and

nearest relative of the deceased lives, there, supplied with food by his friends, until the head of the corpse becomes nearly detached by the process of putrefaction, when it is removed and handed over to the custody of the eldest wife. She carries it about with her in a bag during her widowhood, accompanying the party of the tribe to which she belongs from place to place. The body, or rather the headless skeleton, is then interred in a shallow grave, over which a mound is raised, ornamented by wooden posts at the corners painted red, with sometimes shells and other decorations attached to them, precisely such a one as that figured in the 'Voyage of the Fly,' Vol. I, p. 149. On the occasion of our visiting the grave in question (at Port Lihou, on Muralug), Gi'om told me that we were closely watched by a party of natives, who were greatly pleased that we did not attempt to deface the tomb; had we done so—and the temptation was great to some of us, for several fine nautilus shells were hanging up, and some good dugong skulls were lying upon the top—one or more of the party would probably have been speared" (Macgillivray II, p. 32).

I obtained very little information on this subject. A man when dead was placed on a wooden framework and raised above the ground; sometimes a platform of branches was made on a tree for the corpse to rest upon. The body remained in this position until quite dry and non-odorous, then the bones were picked up and put in a basket and kept in the house, or the body or bones might be buried after desiccation.

The mourners painted themselves red (?), the period of mourning (*daumā*) lasting one year for a relative and a week for a friend. On the conclusion of mourning the relatives painted themselves black and had a dance. A widow or widower might not marry again for several years. (This information does not appear to me to be very reliable.)

Future State.—"Neither at Cape York, nor in any of the Islands of Torres Strait, so far as I am aware, do the aborigines appear to have formed an idea of the existence of a Supreme Being; the absence of this belief may appear questionable, but my informant, Gi'om, spoke quite decidedly on this point, having frequently made it the subject of conversation with the Kowrarega blacks. The singular belief in the transmigration of souls, which is general among the whole of the Australian Tribes, so far as is known, also extends to Torres Strait. The people holding it imagine that, immediately after death, they are changed into white people or Europeans, and as such pass the second and final period of their existence; nor is it any part of this creed that future rewards and punishments are awarded. . . . At Darnley Island, the Prince of Wales' . . .

Cape York, the word used at each place to signify a white man also means a ghost. Frequently when the children were teasing Giom they would be gravely reproved by some elderly person telling them to leave her, as "Poor thing! she is *nothing*, only ghost! (*igur! uri longa, mata markai*)" [p. 29].

Macgillivray was slightly misinformed; *merkai* (or *markai*) signifies a dead man or corpse: the shadow of anything or a spirit or ghost is *mari*. The *mari* of dead men went to Kibupa, an island to leeward, i.e., to westward.

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TABLE OF CONTENTS OF PRECEDING PAPER.

- Introduction, p. 297.
- I. General Account of the Culture of the Western Tribe of Torres Straits, 300.
- II. Particular Customs of certain Islands or groups of Islands, 388.

Islands and their Inhabitants.—Saibai, p. 389; Dauan, 390; Boigu, 391; Mabuiag, 392; Baku, 407; Tnd, 407; Yam, 417; Nagir, 417; Waraber, 417; Masig, 423; Dambai, 423; Moa, 427; Muralug, 427.

—Absence of records and chronology; subdivisions; heroes, 300.

- Astronomy*, p. 303.
Atmospheric, 303.
Medicine.—Diseases; remedies; preserving bones; hygiene, 303.
Food.—Articles of food; food restrictions; condiments; fire; mode of cooking; meals; dietary, 307.
Consuetudines, 312.
Recreation.—Tobacco and mode of smoking, 312.
Crimes.—Homicide; sexual crimes, 313; infanticide (Nagir), 420; (Muralug), 430; Treachery at Baidi, 407.
Morals.—Code of morals, 315; see also *Tud*, 407; relations between unmarried men and women at Mabuiag, 397; adultery (Nagir), 420.
Covenants, Oaths, Obedience, 317.
Religion, Fetiches, etc.—Souls, 317; future life, 318; manes worship, 319; soul or funeral screen, 319; obsession and possession, 321; spiritualism, 321; fetishism and charms, 322; idolatry, 322; spirits and demons (*doryas*), 323; nature-spirits, 323; polytheism, 323; festivals, 324; prayer, 324; sacrifice, 324; amulets, 324; purification, 324.
Superstitions, 324; sneezing (Muralug), 434; shooting stars, 434; treating complaints (Muralug), 434; changing the name of an object, 435; relating to the gods, see turtle fishing, 345; turtle fishing in Mabuiag, 406.
Magic and Divination, 325; instruction in and practice of magic or sorcery (Mabuiag), 330; sorcery with a crocodile's tooth, 400; dugong-fish (Mabuiag), 401; (Nagir), 421; flying-fox, 401; rain-making (Mabuiag), 401; shell-making (Mabuiag), 401; (Moor), 421; (Muralug), 430.
Mythology, 327.
Government, 329.
Weapons (see War).—Bow and arrow, 330; javelin and throwing-stick, 331; bamboo spears, 343; stone and wooden clubs, 334.
Law.—Land, 334; inheritance, 334; administration of justice, 334; punishments, 335; land-tenure at Muralug, 432.
Customs, 335; birth customs (Saibai), 389, (Muralug), 430; test for bravery (Mabuiag), 398, (Tud), 406; nose and ear-piercing (Mabuiag), 406, (Muralug), 431; turtle-fishing at Mabuiag, 406; etiquette to parents-in-law (Nagir), 420, (Muralug), 430; naming infants (Muralug), 430; (see also *War* and other sections).
Taboo.—Food, speech and place restrictions, 338; (Mabuiag), 393.
Property, 338.
Trade.—Intra-insular trade, 339; trade with Daudai, imports and exports, 340; trade with Cape York, 341; canoes on the three-year-hire system, 341; labour (men and women's work), 302; trade-marks, 343.
Money and Exchangeable Values, 343.
Measures and Weights, 344.
War.—Tactics, 344; war charm (Saibai), 389; charm for bravery (Nagir), 420; customs relating to fighting (Tud), 433; Muralug, 433; skull trophy (Nagir), 419; (Aurid), 422. Through an oversight the section on *Weapons* commences on 330.
Hunting and Fishing.—Pig-shooting, 347; bird shooting, 347; fishing, 347; turtle fishing, 348; dugong fishing, 350; turtle charms (Danan), 390; (Mabuiag), 392; dugong charm, 352.
Nomadic life, 353; domestic animals, 354.
Agriculture, 354; gardens (Nagir), 419; (Danan), 426.
Animals in relation to man, 353.
Slavery, 353.
Relationships, 353.
Marriage.—Courtship, marriage, marital relations, 355; (Mabuiag), 394; (Muralug), 438.
Treatment of Widows, 358.
Causes that limit Population.—Conditions of marriage; sons and wife; influence of marriage on fertility; abstinence (Muralug), 430.

- Education*, p. 359.
Initiatory Ceremonies, 360; (Tud), 408; (Muralug), 432.
Games and Amusements, 360.
Dances.—Secular dances, 362; war dance, 363; religious dances, 364.
Communications, 365.
Painting and Scarification.—Painting, 365; cicatrices, 366.
Clothing, 368; (Muralug), 431.
Personal Ornaments.—Head, 368; body, 370; legs, 371.
Funerals.—Funeral ceremonies (Mabuiag), 402; (Tud), 416; (Nagir), including the funeral ceremonies for Magau, 420; (Moa), 427; (Muralug), 435.
Deformations.—Cranial deformation, 372.
Circumcision, 374.
Tribal Marks, 374.
Totems.—Clans and their totems (Mabuiag), 392.
Dyeing.—Dyes, 374; painting, 374.
Music.—Instruments, 374; words and music of the Saw-fish Dance, 376.
Language, 379.
Signals, 379; gesture language, 380.
Poetry, 380.
Writing, 380.
Drawing and Ornamentation, 381.
Machinery, 381.
Navigation.—Canoes; alteration in rig, 381.
Habitations.—(Sabai), 389; (Dauan), 390; (Mabuiag), 392; (Badu), 407; (Yam), 417; (Nagir), 418; (Waraber), 422; (Masig), 424; (Damut), 425; (Muralug), 428.
Fire, 386; *String*, 386; *Weaving*, 386; *Pottery*, 386; *Leather Work*, 386; *Basket Work*, 386, (Muralug), 431; *Stone Implements*, 386; *Metallurgy*, 386; *Memorial Structures*, 386; *Engineering*, 386; *Topography*, 386; *Swimming*, 386; *Natural Forms*, 387; *Conservatism*, 387; *Variation*, 387; *Invention*, 387.

EXPLANATION OF PLATES.

PLATE VII.

- FIGS. 1 TO 11.** Shoulder marks (*koimai* or *koima*) of men.
FIGS. 1-5. From natives of Mer, after Brockett (they are respectively Figs. 7, 8, 9 and 2 of his Pl. II.).
FIG. 6. Right shoulder of Bauba of Mer.
FIG. 7. Etched representation on a bamboo tobacco pipe in the British Museum from Cape York.
FIG. 8. Carving on a dance mask from Nagir.
FIG. 9. Incised pattern on a coco-nut water-bottle in Mer.
FIGS. 10, 11. From two natives of Mer.
FIGS. 12-14. Totem marks cut on the backs of women.
FIG. 12. Totem mark of Badu. **FIG. 13.** Wagud of Mabuiag, now living in Tud, formerly of the dugong clan. **FIG. 14.** Mēke of Tud (?sting-ray clan).
FIG. 15. Love chara. **FIG. 16.** Snake mark of Mabuiag (snake clan).
FIG. 17. Kē. **FIG. 18.** Breast and abdominal marks of a woman from Nagir.
FIG. 19. Breast mark. **FIG. 20.** Back marks of a woman from Nagir.

of a short course of lectures, one on each of the principal branches of the science, would be a service that would be appreciated by many persons who have come to look upon anthropology, not as it used to be, a tabooed and forbidden subject, but as what it really is, in many respects, the most comprehensive and attractive of sciences—the “proper study of mankind.” These lectures might be delivered either before local institutions, or to parties of private students in drawing rooms and elsewhere.

The following Course of Lectures has been arranged for:—

Lecture I.—“Physical Anthropology.”—By DR. GARSON.

Lecture II.—“The Geological History of Man.”—By F. W. RUDLER.

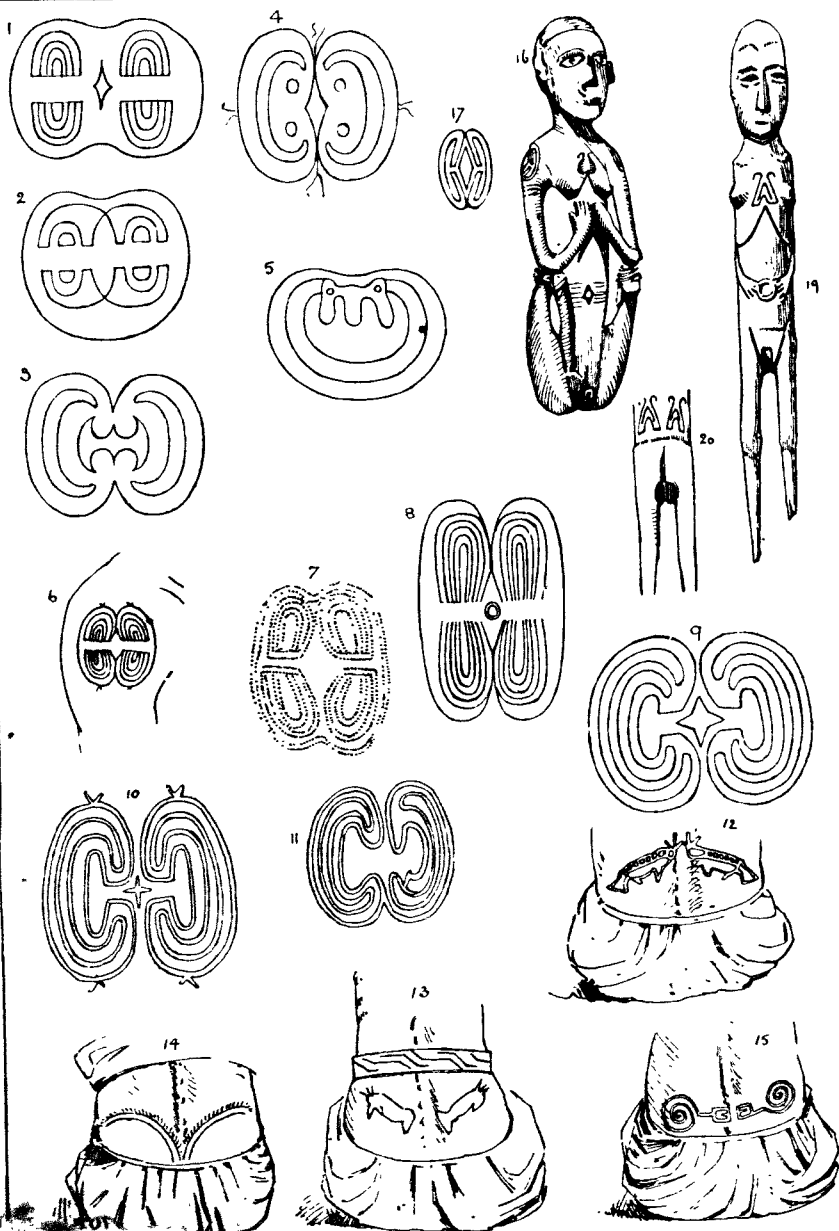
Lecture III.—“Pre-Historic and Non-Historic Dwellings, Tombs, and Monuments.”—By A. L. LEWIS.

Lecture IV.—“The Development of the Arts of Life.”—By HENRY BALFOUR.

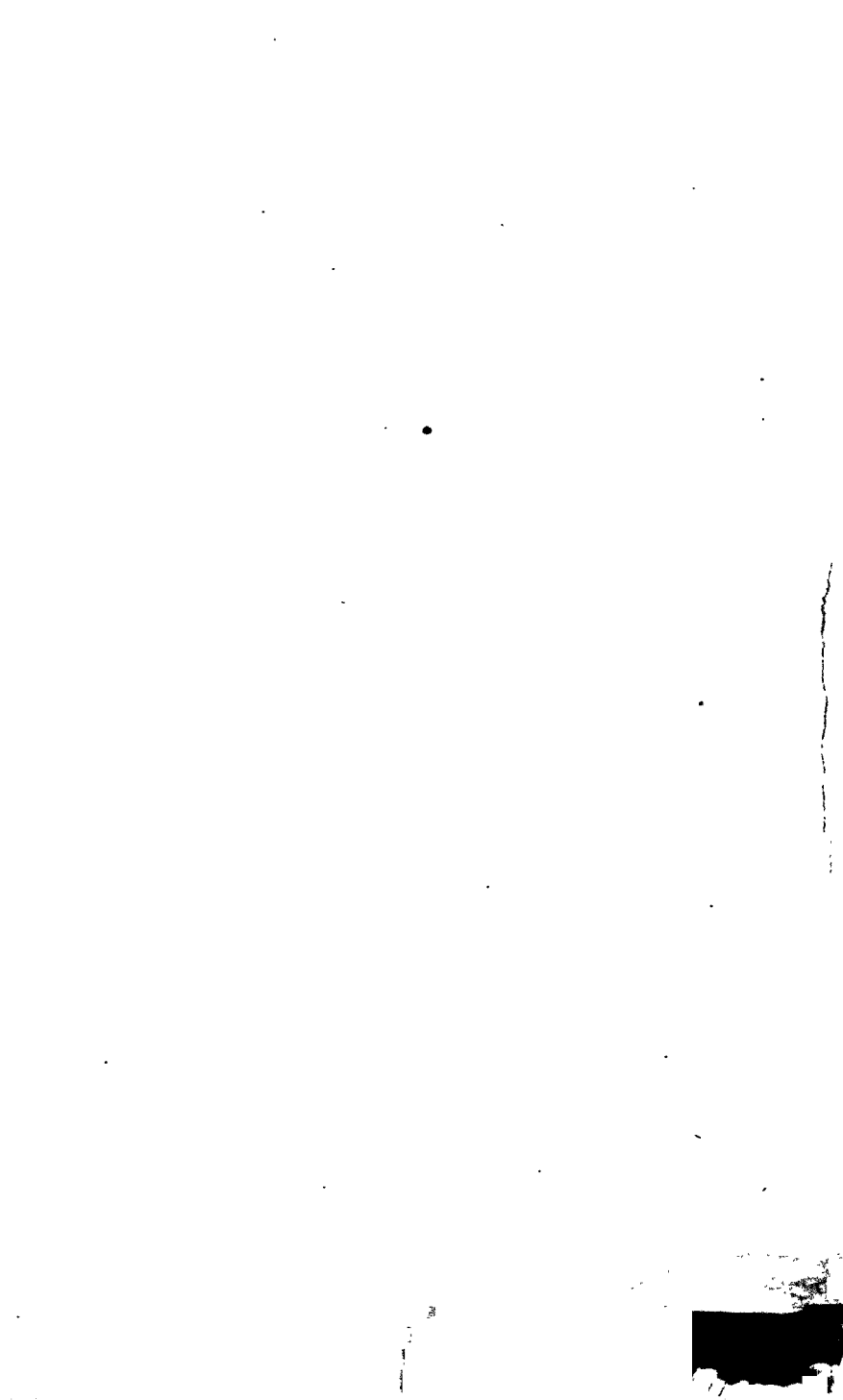
Lecture V.—“Social Institutions.”—By E. W. REABROOK.

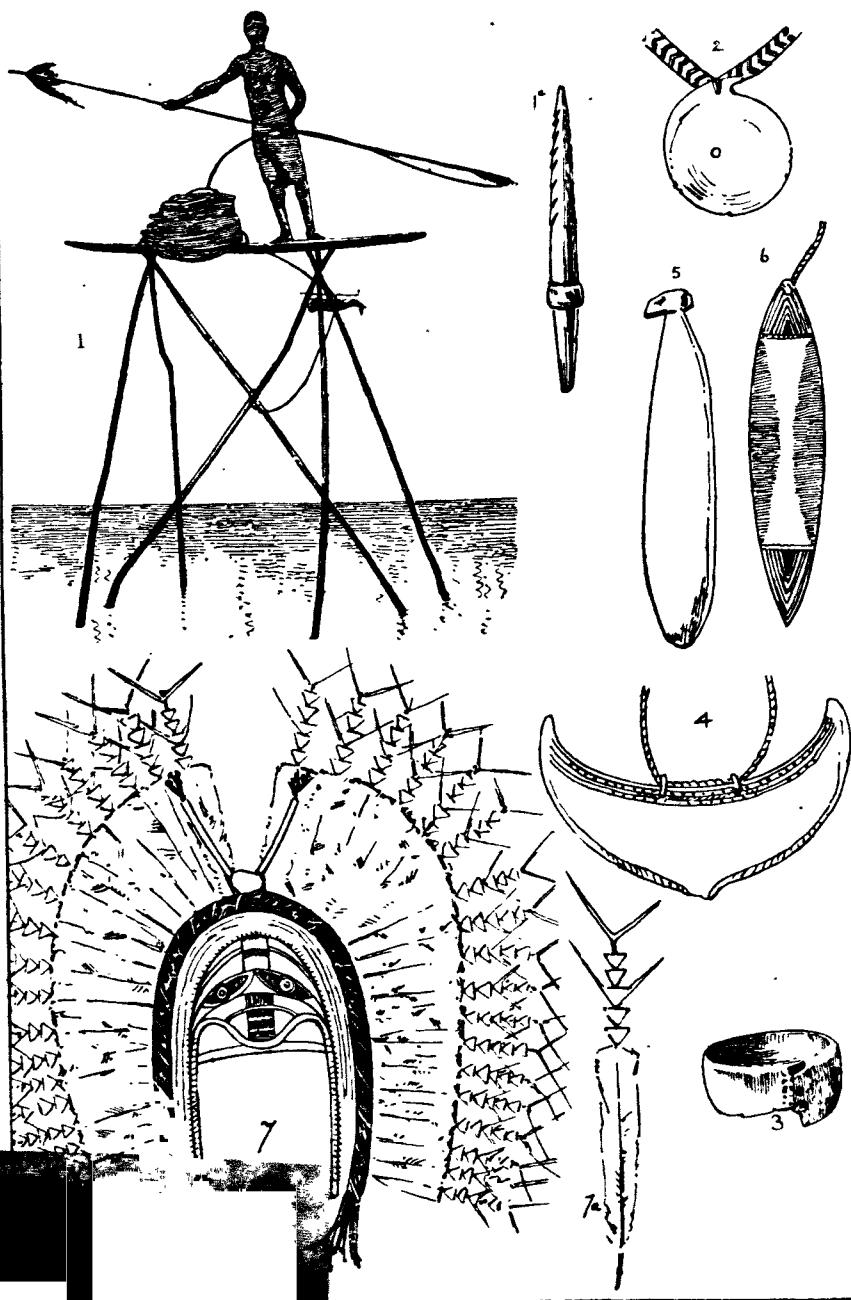
Lecture VI.—“Anthropometry.”—By G. W. BLOXAM.

The Assistant-Secretary of the Anthropological Institute, 3, Hanover Square, W., is prepared to arrange for the delivery of these Lectures at places within convenient distance of London. The Fee for the Course is Fifteen Guineas.



anthropology
 been led to the C
 search in the

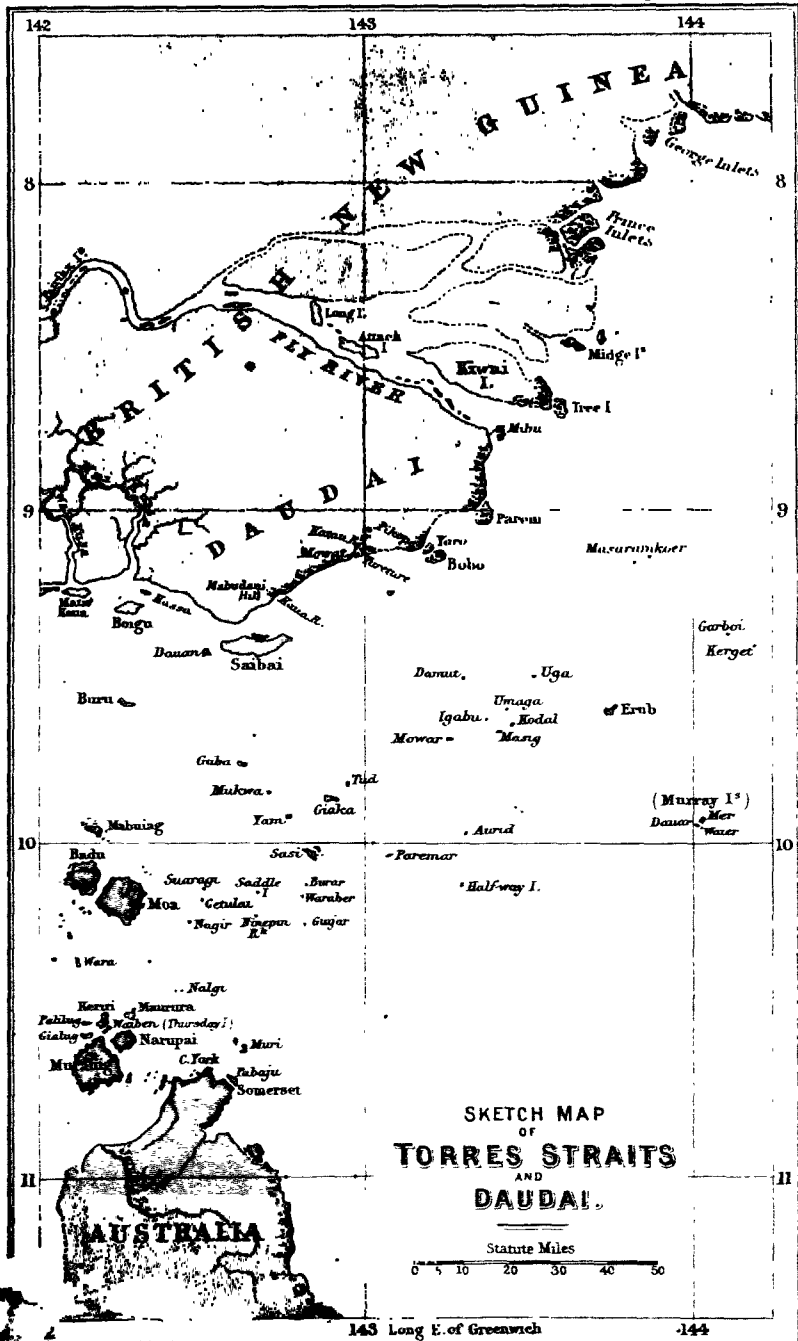


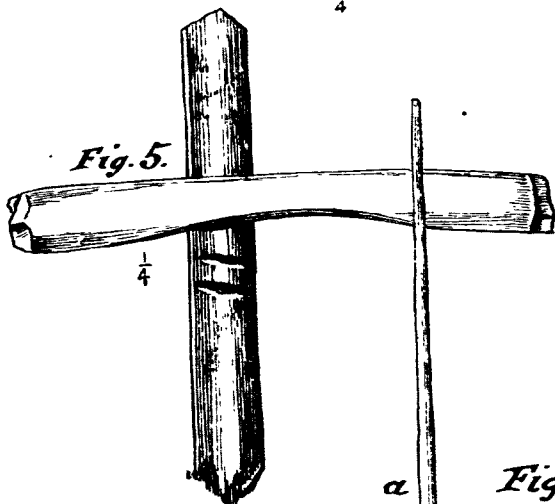
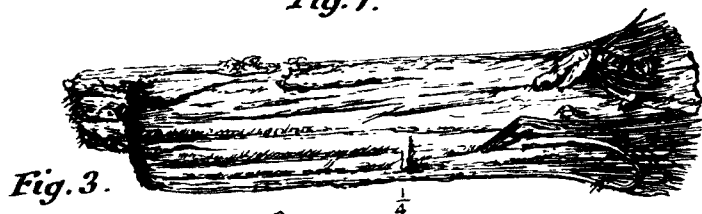
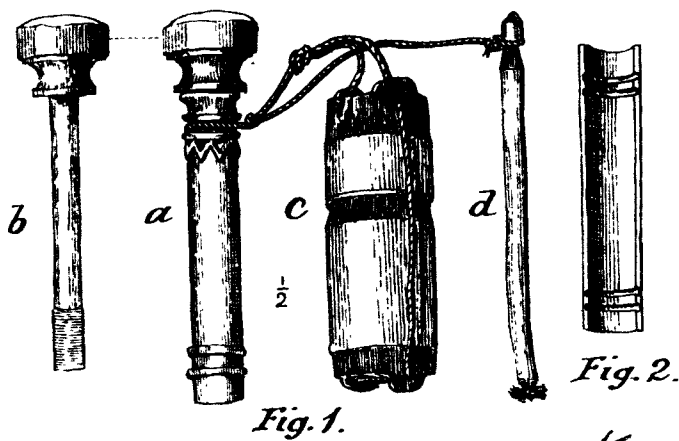


1. SPEAR, 2. BOW, 3. BOW, 4. BOW, 5. BOW, 6. BOW, 7. HEAD DRESS, &c., TORRES STRAITS.









Alf. Robinson. del.

THE JOURNAL
OF THE
ANTHROPOLOGICAL INSTITUTE
OF
GREAT BRITAIN AND IRELAND.

DECEMBER 3RD, 1889.

*Extra Meeting held at the Royal Aquarium, Westminster,
by invitation of the Directors.)*

MR GALTON, Esq., F.R.S., *Vice-President, in the Chair.*

J. G. GABSON read a paper descriptive of the Natives of
del Fuego, which will appear subsequently in the Journal.
Those exhibited at the Aquarium were present while the

MR A. H. KEANE proposed, and Mr. E. W. BRADBROOK
seconded, a vote of thanks to M. Le Maitre, who had allowed the
Institute to inspect the group
which he had brought from Tierra del Fuego; as also
Mr. Molyworth, as Chairman of the Aquarium, and to
the Directors for having given the members free admission to

Montgomery the members then
child-giants on exhibition

DECEMBER 10TH, 1889.

Professor FLOWER, C.B., F.R.S., Vice-President, in:

The Minutes of the last ordinary meeting and of a meeting of December 3rd, were read and signed.

The following presents were announced and thanked
respective donors:—

FOR THE LIBRARY.

1889.—Among Cannibals. By Carl Lumholtz.
on Cebu Typen. Herausgegeben von Dr.

the BOARD OF HEALTH, MASSACHUSETTS.—Bugs
1889.

LISERS.—Oceania: Linguistic and Anthro-
Rev. D. Macdonald. [London; Samp-
son, Searle and Rivington, Limited.]

from the ROYAL SCOTTISH GEOGRAPHICAL SOCIETY.—The Sc-
Geographical Magazine. Vol. v. No. 12. December,
and Appendix.

From the SOCIETY.—Proceedings of the Royal Geograph-
Society. Vol. xi. No. 12. December, 1889.

—Journal of the Society of Arts. Nos. 1,932, 1,933.

—Proceedings of the Society of Biblical Archaeology. V.
Part 1.

—Mittheilungen der Niederlausitzer Gesellschaft für A-
pologie und Urgeschichte. 5 Heft.

—Anales de la Sociedad Española de Historia Natural.

—Nouveaux Mémoires de la Société Impériale des Natur-
de Moscou. Tome xv. Livraison 6.

in the SOCIEDADE CARLOS RIBEIRO.—Revista de Ciências
Naturales e Sociais. Vol. i. No. 2.

in the Editor.—Nature. Nos. 1048, 1049.

—Science. No. 234.

—Revue Scientifique. Tome x
—Revue d'Ethnographie. Tome

Secretary, [illegible]

FIRE-MAKING IN NORTH BORNEO.

BY SYDNEY B. J. SKETCHLY, F.G.S., M.A.I.

[WITH PLATE XI.]

I.—Introductory.

These notes do not describe any new method of fire-making, but they are offered as exact accounts of the methods in use; and I believe such accounts are as rare as useful. Moreover the rapid spread of matches is placing the aboriginal methods even among the tribes of Borneo, who get them from Chinese and Malay

apparatus sent herewith was all made by my own Dyaks as usual, and the photographs which accompany the notes were taken by my wife. I have seen each of these methods practised by my men, and more or less unsuccessful. I have more than once been disappointed in the fire-drill.

The Dyak words are phonetic. The information in the Malay language, and I have

an expression showing the Malays still

A man will say:—

Kaya tak paku, tak budi budi api.

What this man, he will create fire.

It is noticeable as showing they believe the fire is created. As a Malay elegantly expressed it—

ada api didalam, seperti budi manusia.

There is fire inside, just as a man [has] mind.

II.—The Fire-Springs. (Pl. XI, fig. 1.)

The Malays call these *Basu api banyu*; the Malay *Basu api*

Basu api banyu (Basu = water) is the Malay name for the fire-spring.

Why the word *besi* is used seems difficult to explain, ters into its construction. I can only suggest it is deviation of *lukul bes*, "a hammer," literally "an iron case the name would signify "tin-fire-ham on discourse the machine is simply called *bes*. I think the apparatus was ever made of iron, as the cast hollow things in iron, nor do I think *bes* can word with a meaning unknown to me.

The fire-syringe is by no means commonly known. I asked many Dyaks before I found any who could describe the one. Finally some Kalakas helped me. The Kalakas come from the he tribes in border being west from Sarawak; Lupa, Seribas, Kalaka, Batang Rejang. The names of a fire-syringe are named as follows:

Dyak	Mal.
Bangka	Timah
Tiras	Melayan
Umbut	Lulut
Sarong-besi-api	Tempat
Rotan	Rotan

Bangka probably from Banca.
Timah is the name of the wood used.
Melayan is anything used to pound with; thus the fer pounding padi is called *melayan*.
Lulut is a "pestle" or "pounding stick,"
 is simply "tinder."

Umbut, also signifies "tinder,"
 acted with *lulut*, "in atoms."
Sarong signifies literally a "sheath" or typical Malay dress, the *sarong*, is a "sarong," stockings are *sarong kuku*, sheath is *sarong pasang*, or *saron* both Dyak and Malay.
Tempat means literally "a place where kept." Thus a bed is *tempat tidur*.

cast in a bamboo mould, somewhat as lead pipes are, I cast. The mould is a thin piece of bamboo, split lengthwise the interior of which the ornamental bands, &c., are (Pl. XI, fig. 2.)

One of flat wood, plank by preference, has a hole made in the middle of the bore. Through this hole a rotan is pushed, so passes through a lump of clay tempered with sand on the upper surface of the plank. The rotan projects a clay to a distance somewhat greater than the length

bound together with split rotan, is placed centrally over the projecting rotan, thus forming a box closed with clay, open at the top, and having a rotan in the middle. Into this the molten metal is poured. When cool

the rotan is withdrawn, the mould open, and the cylinder is complete. A good mould will make three or four castings, but, the first destroys it.

Measurements of the cylinder are:—

Length, $3\frac{1}{4}$ inches; width, $\frac{1}{2}$ inch; bore, $\frac{3}{8}$ inch.

Average size; larger ones do not work well, smaller ones are of less use.

The construction consists essentially of a double cylinder, with a quarter of an inch from the top and bottom, and a chevron moulding beneath the upper cylinder. Of course the details vary with the taste of the maker, but I can only describe what I have

seen. The mouldings are useful as well as ornamental, the former keeping the cord from slipping which is the chief use of these pieces of apparatus.

(Pl. XI, fig. 1, b) is made of any hard wood, with a knob at the top, and is packed at the bottom with cloth to render the apparatus air-tight. The interior is hollowed for the reception of the tinder.

The material which answers best is made from the external bark of the stem of a low palm, called by the Dyaks *apiang*. It shows the name is due to the use made of the material which forms the tinder. I have only found this growing on the banks of mountain streams far in the interior, about 30 feet high with the habit of a sago palm. The leaves are about 15 feet long, the leaflets

are with the apex towards the leaf base. The bark is highly character-
 istic of the place.

is covered with a brown lacqued
ed off and forms the best tinder
which is a joint of bamboo abo
e inches long. It is ornament
skill of the owner in leisure mon
nothing else is simply a piece of
r-bar are attached to the syringe
the syringe a small piece of
end of the piston which is inserted
cylinder. Holding the cylinder in the left
suddenly struck with the open
to drive the piston home
quickly withdrawn and the flash
breaking on the spark it spe
ich catches fire immediately
and has ceased and and in
flash is produced.
only but I have succeeded
only one. The piston with the
sharpened.

Fire Drill (Pl. XI fig. 4)

own method of fire-making is com
ives in this part of Borneo, Malaya, Dya
Cagayan, Sulu, Murnia, Cagayan sulu,
s getting rare to find a young man who k
though they soon learn.
three kinds of wood are used as d
none of which unfortunately have
by flowers or fruit. In all cases
ined, soft and friable. The common
one with large, sharp-like leaves.

omitted or not applicable to the Australian

a) is a round stick about a foot long, tapering from an eighth of an inch. The thicker end is slightly

rod (b), as the other piece may be called, since from obtained, is of the same white *ladang* wood, about 1-25 inches, roughly squared on all faces. This must have any flaw in it.

The first operation is to cut a notch or groove down the dust to fall through. This is not mentioned by Captain is always done, and indeed is necessary, as the dust is in a little heap on the ground below the hot drill, arising accumulate round the drill on the top of and be scarcely heated.

operator sits on the ground and holds the fire-wood steady with feet. Then taking the thin end of the drill between palms of his outstretched hands he plants the rounded thick little on one side of the centre of the fire-wood towards groove, applying considerable pressure.

then works his hands backwards and forwards, keeping the pressure, and moving the hands steadily downwards. At the bottom the hands are slid up again and the repeated. During the upward motion of the hands the drill. At first the motion is slow, about one remove per The friction begins to wear a hollow in the fire-wood, but falls down the groove in a little heap.

wood be in good condition, the dust, which is the begins to smoke in about twelve strokes (i.e., twelve the hand upwards). The motion then becomes skier and quicker till it is very fast, and I have got in a hundred strokes within a minute. The about two minutes, but it may be five or ten if the bad quality, or the operator unskilful is got the spark is gently blown, and the with shaved wood till a flame is obtained

being continued all the time.

ill wears but little, and becomes hard and charred at

The fire-wood is usually bored about half-way through fire is got. The same hole can sometimes be used twice in the process.

IV.—The Fire (Pl. XI, fig. 5.)

It was a favourite method of fire-making
 gayat-sulu, and is quick and effective.
 It is of fire-saw, but in both the apparatus

the first method two pieces of dry bamboo are
 which may be called the saw, the other the horse.
 The saw is a piece split from a large bamboo about
 12 inches wide. In the centre
 it is cut across the saw deep enough
 to start. The outside is then scored
 and put over the hole for tinder.
 The horse is torn up from the inside, but not
 too far, and are bent over the tinder to

form a piece of bamboo, somewhat longer
 than the edge sharpened.

The horse sits on the ground, the
 saw is placed on top of it, and the
 horse is pushed down, tinder uppermost, one

by strong pressure he places the notch on the
 horse, and steadily works the saw to and from him
 about ten strokes the tinder begins to smoke, the saw
 is moved more and more rapid and finally very fast, and the
 fire is aglow. Lifting the saw he blows through the ho
 led side on to the tinder, which is soon all sm
 oke and is got in the usual way. The usual time

I have seen the operation completed in sixt
 This is the common method in Cagayan-sulu.

The second method, in use in Sulu and
 also in Selangore, &c., is simply a reversal of
 the first. The sharp-edged bamboo becomes the saw, the tin
 der-laden bamboo the horse. The tinder-laden bamboo is fixed
 in place, and the sharp-edged bamboo worked
 back and forth. It is equally effective
 I think, not quite so rapid.

is a long bamboo nearly upright, and taking a little of the end inside of bamboo in the hollow of his hand, and the fore and middle finger and thumb, he strikes a spark from the coating of the bamboo by one free stroke of the arm. This is a good hard, seasoned bamboo to work well.

Description of Plate XI.

Illustrations for fire-making in North Borneo; collected by Mr. J. Skertechly, and presented to the Anthropological Museum, University of Oxford.

a. Syringe, or *besi api*, complete with appendages. b. Piston, removed from the syringe; c. Tinder-box; d. Cleaning stick.

e. Piece of the bamboo-mould, in which the cylinder of the syringe is cast.

f. Piece of *apiang* wood, from which the tinder is made.

4. Fire drill. a. Drill; b. Firewood.
5. Fire-saw with horse.

The paper was accompanied by a series of photographs taken especially, showing the methods of obtaining fire from the materials described above.

DISCUSSION.

Mr. Haddon pointed out that the slot cut in the drill-hole by Mr. Skertechly, was not made by the Torres Strait natives, but by the natives of Queensland, and is therefore not the process. In North Queensland a short sheath is used, covered with beeswax and ornamented with red seed, and a piece of an orchid, in order to protect the ends from damp. In the case of the two fire-sticks being made of the same kind of wood, a difference in hardness would be the only difference, the one piece being at one end and the other at the other.

Mr. Haddon, referring to the survival of ancient modes of fire-making, remarked that he had a tinder box, flint, and iron, which were used up to 1870 by an old man in Epping Forest. He had declined to allow any matches to enter his house.

Mr. Haddon, on being asked by the Chairman to give some account of getting fire employed in use among the Eskimos, said that he had seen used: The first of the two plans consisted of a small bundle of grass, which was three inches in diameter, and was used in the following manner:

where some soft cotton was added, and as of decayed wood. By striking two pieces of this, the sparks ignited the finer parts. He employed with some ordinary matches, also with a water-tight tinder-box filled with burnt sugar and brimstone, which would not very much by the manner of the apparatus, whilst travelling either in both to light their pipes or a fire. The other is it obtained on Wallaston Island, and consisted of a piece of willow or poplar eight inches long and two inches thick. The drill in this apparatus is fourteen inches long and one and a quarter of an inch in diameter. It is fitted into a stone socket, fit it more easily held in the teeth. It is placed in the apparatus. In use, between the knees, the mouth is thrust into the thickest end of the drill, and new pieces of wood not previously holes already worn out; then is the socket of the mouth, and a skin thong which has been used to hold the hands.

was exhibited and described several fine of Mr. Skerchly's descriptions.

Mr. Skerchly sent for exhibition some full-sized drawings which he had made during the last voyage of the *Lady Brassey* in the *Sunbeam*.

read the following Paper :-

RESOLUTION concerning the Order

drawn from the designations

By Dr. H. Rink, of Co

paper in the Anti

and caused to give a

imagination, and in this way to simplify the investigation to the cradle of the Eskimo race we regard to the cradle of the Eskimo race we to discern between their original home and in which they have developed their present culture characterised by their capability of procuring means in Arctic Regions where no other nation can live for themselves to the latter, the *Eskimo culture-home* principal scope will be that of pointing out one or two conditions for guessing the site of this home. That the regions at our disposal for these considerations of enormous extent, comprising the continental seaboard and islands of America beyond a line varying between 56° N. including Greenland and the extreme north-west of Siberia. This territory was occupied by the Eskimo race, its only inhabitants before their modern contact with other races. We divide them into Eastern and Western Eskimo. From Cape Bathurst in about the middle of the coast of Hudson's Bay to Bering's Strait. The Eastern Eskimo include the Labradorians, the Greenlanders, and the Central Eskimo; the Western embrace the inhabitants of the shores of the estuaries of the Mackenzie River, and those of the coast of the West including the Asiatic Eskimo. However, with the question as to what part of the coast the first settlers arrived, Greenland and the most northern part of course be exempted. Consequently the Eskimo culture has to be sought for between the extreme south of Labrador and somewhere on the Siberian coast north of Bering's Strait. The conditions, above all, to be observed in prosecuting our research on this subject are, in the first place, *that only one culture can have existed*, and secondly, *that even then it had a relatively small extent*. It must be concluded that the settlers should have arrived in two or three places at the Arctic or sub-Arctic sea-coast, and that their Eskimo culture independently of each other. There are several reasons for believing that after the first settlers had begun, new emigrants frequently joined these pioneers even in places distant from the first, but in this case they wholly adopted the habits of the first, and in doing so became amalgamated with them. "relatively small extent" of the "home," this small, judged by an Eskimo scale of distance, the settlers must have been in mutual intercourse with each other.

of one com on origin
at this uniformity was a
it have given rise to the
rywhere, leaving but little
resorted to the testimonies
telling on the border of the ice
of life the new comers must
ber of new words designating
cially the animals which for a
while
Scandinavian
not at
not. I
the new
counted
ated the admiration
It is to be created from
existing words
scale. It is evident
most stress must be
most important word
from the Greenland and the

the question was how to find the counter
rer vocabularies of the other dialects
is that of instituting a comparison between the w
the same objects are designated in
of Cape Bathurst, ascertaining how
ould be discovered. I picked out 36 v
ales and their capture. They were
east and west of Cape Bathurst, an
onad in the vocabularies even of th
birds of them are classed as stem wor
ry. They are as follows:—

and narwhal tusk, *igdluq*.

bone, *sorgaq*.

whale skin, *natuk*.

breathing-hole in the ice, *agdlu*.

a skinboat ("Women's boat"), *umiaq*.

double paddle, *angut*.

aput.

getellut.

qajag.

the ship, *sturnaq*, *aputut*.

ib, *igut*.

row, *natuk*.

cross piece, *manik*.

paddle double-bladed, *pautik*.

of the large harpoon, also the harpoon itself

visible part of this shaft, *igimaq*.

bone-cover on the shaft, *quteq*.

the loose harpoon-point, *tukag*.

the action of throwing and hitting with the harpoon,

norag.

rest on the harpoon, *tikutut*.

aleq.

ler, *natag*.

for stabbing, *qaut*.

agdluq.

q. angut.

added exhibits a more complete selection of the words concerning the marine mammalia and that might have been expected from the scanty linguistic West. If now, instead of some among them that have been used in an earlier home (e.g., Nos. 16, 17) add objects from other domains, but also more bound up with the idea of a sea-coast, as e.g., the ice and flood, the polar bear, sea birds, and other similarity or absolute identity might be pointed out in this way. But the above selection, I suppose, will suffice for present considerations; its number of words what might be necessary for proving a common origin, or at least the possibility of an accidental likeness of the words in the sea-coast without sufficient opportunity.

is stated with certainty included with it

robability. In a paper quoted above, I
at the culture from in question occupied the
of several rivers, and that in the
give cotton from the interior, while
its successively spread
in a small volume
and chiefly dealing
show how the disease

the disease is being a
of the disease
and which is North
elements being a
of the disease in
daily changing before

a construction of buildings and at the same
the social organisation and religious customs
still only slight change in all these
ture seems to be side by side with
cultures and the stupefying effect
from the original home.

as way we maintain the supposition
ving been propagated from a
a number of the wanderers who
have become augmented by the
to inland people of the East
of the Indians and retaining
associated with immigrants a

ported by several, certainly somewhat isolated striking similarities between Asiatic races. But there is at any rate one question previously to be settled, and this is again the situation of the culture-home. Considering the Bering's Strait can be crossed and the means of passage for settlers on its shores, an emigration can be effected excepting by perfectly developed Eskimo, and consequently the case must have been situated in Asia judged possible or even probable, must have been the result of comprehensive researches than have hitherto been made in the archaeology and geography of North America and of the inhabitants thereof.

In my paper in 1885 my sources of information have been the following eminent explorers:—

His "Journey in Alaska, 1881-83," edited by A. Jacobsen, 1884. Jacobsen also furnished me with much a written vocabulary from North and South Alaska, and quite lately I had the opportunity of inspecting in his guidance the admirable ethnological collection from Alaska procured by him for the "Museum für Volkskunde" at Berlin. On request he also gave me a list of Eskimo words especially referred to before.

4. "Report on the Point Barrow Expedition

5. This work contains an excellent supplementary vocabulary from Alaska.

6. "Contributions of the same Point Barrow Expedition to a theory on the migrations of the Eskimo derived from American Anthropologist," April, 1886, but containing valuable information by pamphlets and letters.

7. A well-known explorer of the Central Region

8. "The Central Eskimo," Washington, 1889.

9. Opportunity of co-operation and of personally conveyed information I am indebted to him for very extensive in

He agrees with me in asserting ("Science," 2, 1887) that the Eskimo reached the ice-covered one body.

10. Our well-known explorer of the hitherto unknown Danish East Coast and his admirable work on the history of East Greenland ("Meddelelser om Grønland," Copenhagen, 1889) ready assistance.

Behring Straits and the
in this point eastward all this was change
e or no wood, and few or no walrus or whale
armament of any shelters where there was
were constructed. Also no oo-miaks
as the Eskimos lived chiefly on land and
cattle principally. This state of things
free thousand miles to Hudson's Bay. W
onland, however, and find themselves as
marine animals, as when near Behring
no their old form of half-underground
houses (so well described by Dr. Kane) b
similar to those at Behring Strait. Dr
man's authority that the form of head
differs extremely from that to the past—
simile the latter the very reverse. He h
a. [unclear] [unclear] description of [unclear]

DDON gave a verbal abstract of the following:
Illustrated his remarks by the exhibition of a
on New Guinea:—

of MOWAT, DAUDAI, NEW GUINEA.

indicated by J. G. FRAZER, Esq., M.A.)

ginal or proper name of this place as well as
Map, Pl. x. in the current volume of

which has been altered I fancy by surveyors
belongs properly to a place on the coast some
ist from here, which is still known as "Old Mowat,"
forefathers of these people were driven by the
and constant raids made on them by more powerful
in Kawai and Paramoa (Bampton Island). Finding
this district friendly disposed, they arranged
Tara Tara, three miles distant, and the
Gradually interests became severed, and now
is the other as a distinct tribe.

he is divided into different clans, each having
his animal being held sacred and the flesh
the members of that clan. A representation
it cut on any part of either men or women,
ive some mark made to denote the clan.

not the custom of a man changing his name
or any reason whatever.

men wear a band of grass from the waist
ween the thighs, and fastened again to a band

wear grass petticoats from the hips to a little
below. Coastmen wear anything or nothing. Bush
band of rattan cane round the waist with leaves

observed at birth, the mother is neither
ed as unclean, nor does she observe
or have to undergo any ceremony before
society. The *couvade* is not practised
ed by either with or without names only
father

A shaped cicatrice is made in the breasts dropping. When a brother is dying or turtle marks are made on some part of the woman. No ceremonies accompany them. Only the women are scarred. It appears to be also some clan mark. A remedy is held on girls arriving at puberty which no komata is drunk. Neither subsequent menstruation is a woman obey any rules. They bathe until they believe the moon's changes to be the cause believed in the event of a man having an during menstruation that they lie down with another woman. There appears to be no restriction as to about the same tribe or clan. Adults are not equally practiced in the forbidden. In some cases but as far as is

ry and by exchange, thus:—if a man
 he can exchange a sister for a wife
 there and sisters in a family t
 e eldest sister, and the brothers
 e equally, but if the numbers are
 reference. It sometimes happen
 he cannot obtain a wife. Some-
 purchase. It may also happen
 choice in spite of all

... goes to the husband's house.
 al wives in his house at one villa
 i spends part of the day, and also
 hom he spends the remainder of th
 gardening. (N.B. Mowat is composed
 1.) There are no particular customs
 he night before marriage. At marriage a
 between the friends of the man on the one side,
 the woman on the other, but it ends without
 — ple usually spend a week by them-
 after the fight. The bride is not
 bridesmaids or best men. The man
 mately after marriage; he does not
 re are no customs requiring
 he wife with other persons eit
 here are no occasions on which
 ing with women.
 requires modification.)
 (see. A widow becomes the wife of
 cher. A man may not look at nor

a natural death, but attri
 to the agency of some enen
 isences are traced back to
 ens with a rope whilst in
 into a sore and the disease spre
 swellings or fractures by cuti
 nal pains by the laying on of ha
 ribe. There are no burial ceremoni

41. The spirit of the departed is not feared
 superstitions about the bones of the dead
 he deceased do not observe any special rules
 nor are those who have handled the corpse
 42. Mourners cover themselves with mud and
 he neck do a so and dragging

the purpose. The purpose
ing else, such of the depart
to it only in the same way as
animals. I was positively assur
aining from purpose flesh. Me
ether. Food is eaten anyhow
king about; cannibalism is not
is used after being cooked; the
They never fast. The penis of
t cut off and, supposed to posses
a right hand only are scraped and
food of the victors. The ru
and worn. All the above are f
he strength and ferocity of th
a wife is necessary, and the

the bones are thrown away and a hi and feasting.

killed with hoes. There are no references to agriculture.

observed before going to war nor by the warriors or by those left

government, but there is one chiefship is hereditary if the eldest son survives it is elective.

forms of oaths or ordeals, neither are the making of friendships,

by bending the tips of the fingers of the hand or fingers of the other quickly. They can only count up to

count on fingers or toes, nor do that they are borrowed from the custom of their fingers. Pebbles or sticks are not used in

no method of sending messages or of making signs or by knotting cords.

sun, and the time of day by its by nights. Only those who live the phases of the moon or by the and leaps. The year is determined by of yams, taro, sweet potatoes, le and the change of the monsoon near year or months. There at the old and new year, nor are there any

Monsoon dances are indulged in operation as to dress, and are looks of the great dances which take place season when little else is the Monsoon dances, consisting of

in step, are continued the rest part of the day is spent in adorning a result that is really gorgeous. The decoration of grass, green leaves, white feathers, plumes, a fibre made from cocoa-nut leaves of the croton after use, is always put into the hair. (I lately saw a New Guinea dancer in a comic

10-10-10

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----- dugong and turtle is
out Mablung, Moa and Bido and be-
goes to New Guinea, via Saiba
as the dugong spears are, so
is in Mablung--A.C.H.]

The first cause of Death.

Steve had a wife named Si'guru, who
which she ate up all by herself less
her husband. he asked the reason at
his house.

to sleep with their heads on one pillow
her spirit entered into a kangaroo, then
a cassowary and after passing through
a snake eventually found its way into
a pigeon, which flew to the top of a high tree.
the next morning she could not find her
looking up into the tree and recognising
a stone tomahawk and after warmin-
g to cut down the tree but found that
the South-East trade or dry season had
and through a blow from the Sea
a New West storm, blew it down
by the tide to Dibri, the
brother. Sidor remained in that
place to Meuri's house. On
the same day.

Next day the wife of Meuri, was
seen with her back close to where Sidor was
and of covering her head with ashes. Sidor
noticed and committed a digital assault.
In due course the usual signs became
his husband noticed and made inquiries about
it that it was probably done by some
until night. A high tide during the
the trunk enclosing Sidor still closer to the
tree cut up the tree into very small pieces
taking his stone club he questioned the animal
about the state of his wife, soon Sidor was
convinced of the treachery and called on him
to be the best man. Sidor then
knew that he had been deceived and did not

erwise have happened and every
He bade them good-bye saying
bade of spirits—and disappeared.

NOTES ON MR. BEARDMORE'S PAPER.

By ALFRED C. HARDY.

ves, and to render
have abstracted

ry own.

ockets [] are made b

women is called *manou*
es) and a bra
s, etc. dyed
and from 50 to
a waist belt, t

band and the
side of

e depends, is ornamen
and black split leay

re green fabric being usually pa
arment this latter portion goes behind, so
on the left side. The narrow tuft which han
t, is doubled up and tucked between the legs, and
is passed forward between the legs and double
t which is tucked under the band in front, ha
the narrow portion. The wh
y looking wisp of "grass" i
in the legs
iver (Kiwai, etc.) a very s
tly more scanty, and is said
Sago palm (bis). I belie
in *doi-ori*.

sometimes worn at Mowat, i
ost continuous leaf petticoat hanging
is a small gap on each thigh. This
a Saibal and Danan.
is the full petticoat worn by more it

clothes. Their ornaments and weapon
of Torres Straits.

that the men have no relation with the w
season, i.e. the time when the turtle s
is usually considerable laxity of morals

oman is dragged out and there is a stig

same father, but no

ara. W

e t

H

to the
of the
of the
of the

re-Salt, or *manis* and *log*
and New Guinea.

19 Gill, 1876.

near from the western
river opposite the m
called *Manat* by the nat
islanders" (p. 235).
in mouth of the Katan
g [with the chief *Mano*]
among (*Halicore australis*), a
These *Manat* men are a si
nearly black; their hair is
part shaved. Their ears were un
means of weights, but with a regular ser
ich was inserted a short piece of the mi
Their bows, upwards of six feet i

They are made of m
ch are used as air
arrows are of re
long) are pointed w
while those intent
h human (I suppose
e [?] poison. The he
ee of the arm and
left arm to protect

is a man of mil
a *Mano*. Accon
and names were
their visitors be

aspect. The
up to the
orchestra
for music
1)

the sago-palm, which grows
New Guinea. We climbed
up in Torotoram (sic). The
dozen adults. The
From the
sides of which are

turam [sic] may be estimated at 1

on the shoulder of all males

What I did and what I saw.

ETHN. Vol. II, 1889.

VAT (1872-76).

and yellow and white—women dan-
mad—the women add to the
made of a great number of cords
neck, both before and behind, &
the feet, and is gathered in an
pile of cord. Their arms, and legs bear
with bracelets and anklets similarly con-
I obtained one of these; it is now in the

houses built on piles of no great height
by several families, and is divided
departments right and left by a sort
departments are farther sub-divided into

They have two fronts, one far
at distance from them, the other
out of the door, which looks
man heads suspended like to
bones were removed from the
one in a corner ornamented
to be used as bracelets, wh

ves. "Here we also saw a
was of much less imposing dim
(p. 10). [sic? Daan, see

real, p. 390.]

large plantations of cocoa-nut palms,
generally surrounded by a high stone
in the pigs" (p. 11).

given to fishing. Live a great part of
duce of the Warrior coral bank
the natives use wooden holsters
rove, and representing curious
ile, another a kind of siran, &c.
all them "l [uai]" (p. 11).

people—people—people

the operator's wife
said he took out of his bag a
and one sign of arrows. "Which he said
very one of these represented in the
velour" (p. 17).
of one half of the village of Kowen
the village of Kowen. A long distance
and much of character and
(p. 18) (p. 18).
morning covered women are to be
of each way to work in the
said by her husband who works
and arrows. These women are taking
the. They often have a child
followed by one of these women
from these days.

as, as in a little bed. They
wore a shirt, and the wrist were
The author "after arrival"
placed on it some good
cocoa-nut used for drinkin
ke use of for various purpos

very much from the men. They a
ed skin and more prognathous.
men they wear very short, gro
(9)
reasts which slant upwards, differin
ta of some of the islands in Tor

fight the Bushmen. "They did not
vening, when they entered the villa

They made a short li
They certainly went through a ceremony
one carried on their shoulders a kind of litte
aves—they were bringing back a dead body
" (p. 194). "In token of war, Maine's
clay" (p. 196).

The natives of Moetta went ove
e of Ture-ture, to a feast and a
black from head to foot, the white
f the younger ones, standing on
skins. The sons of the chiefs
i-pearl. Several were adorned
a circlet of white shells. The
s and arrows" (p. 196).

the same roots of a plant, which the na
in and intoxicating properties. Mana
rience its intoxicating effects per
and after chewing a certain quanti

of a large sea-shell, which, shar
a handle, serve as spades" (p. 197).

year 1869 have been
last year. This fall
the Institute, is perhaps
out in the annual subscrip-
12s more of arrears than any
of the publications has slightly in-
creased during the year was \$674
than the receipts, and £33 10s
of last year. The members have
of this extra expenditure \$20
on the *Journal* than was ex-
penditure of the *Journal* has received
it. About £10 more have been
in consequence of the operations
used—firstly for aid in conducting
biological Explorations, and
also Anthropological Explorations.
These operations will directly

At a Special Meeting of a group of native this opportunity of us of the Aquari

in History of the
South Sea Islands
and of English Literature

Mr. E. K. Vice-President
of the Anthropological and Ethnological
Society, M.D., F.R.S.
of Yoruba. Exhibited by
of the Composite Bow. By J.

Dr. R. H. Codrington, D.D.
Natural Colour of the Skin in certain Or
F.R.S., President.
itions, and Religions of South Africa
nald.
ern Tribes of Torres Straits

By Dr. J. G. G.
New Guinea. By Dr.
By S. B. J. Sharkey
Dr. H. Rish.

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Professor Flower, president
Association at New York in the
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President of the and

ADDRESS

E. M.D., F.R.S., President.

the last moment, to find it interesting, and to thank you in
recognition shown to me, your Highness I am sensible that
able to me, that possible with
kindness and assistance
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could not have been got through.
in a not unprosperous year. The

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Austria, the most civilized
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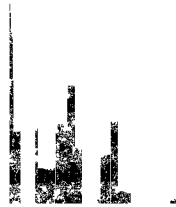
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of the people as much more as possible. The people have been close to the great advanced of the world, especially of the west. The Nevada people have in their minds the (comparatively) new lands and the

people especially in California

people have brought out some very in the world and present. The people of the River generally have the higher stature and medium head of the south and

people have been in the world and present. The people of the River generally have the higher stature and medium head of the south and

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people have been in the world and present. The people of the River generally have the higher stature and medium head of the south and

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Taylor, Thomas
Taylor, and the
Taylor family
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at about 1800
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ing is, that to both of these
of the Slave are a matter of
the Slave are well and

482 J. L. D. TAYLOR, A. J. D. WATSON & J. H. WATSON

中图分类号: G434 文献标识码: A

— 54 —

A large, dense crowd of people, likely a protest or demonstration, filling the frame. The image is grainy and high-contrast, showing a sea of heads and shoulders. The crowd appears to be moving or gathered in a large open space.

[illegible][illegible]

9 1 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1

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